6537.0 - Government Benefits, Taxes and Household Income, Australia, 2003-04
Previous ISSUE Released at 11:30 AM (CANBERRA TIME) 13/06/2007

Summary

Main Features

NOTES

ABOUT THIS PUBLICATION

This publication presents the results of a study of the effects of taxation and government expenditure on the distribution of income among private households in Australia in 2003-04. Previous studies were conducted in relation to 1984, 1988-89, 1993-94 and 1998-99. The approach taken is only one of several ways of undertaking such a study.

CHANGES IN THIS ISSUE

There are several significant changes between the 2003-04 study and the previous studies. The main changes can be broadly classified in two categories:

- the Household Expenditure Survey (HES), which is one of the major data sources used in the study, underwent a number of major changes in 2003-04. The survey was integrated with the 2003-04 Survey of Income and Housing (SIH). This resulted in the redefinition of a number of income items, so that they are aligned with the corresponding SIH data items, which results in some loss of comparability between 1998-99 and 2003-04 HES data for private income and taxes on income
- improved methods have been used in the study to allocate social transfers in kind and taxes on production to households. Some data sources to allocate government expenditure have also changed.
- More information on these changes is included in paragraphs 3 to 6 of Explanatory Notes. Detailed information on changes in the methodology for allocating taxes on production to households is included in Appendix 4.

Some changes have also been made to the content of the publication:

- adoption of revised terminology, consistent with the 1993 System of National Accounts and latest government finance classifications. **Direct benefits** are now referred to as **Social assistance benefits in cash**, **Indirect benefits** as **Social transfers in kind**, **Direct taxes** as **Taxes on income** and **Indirect taxes** as **Taxes on production**
- revised classifications to present data on social assistance benefits in cash and taxes on production
- inclusion of equivalised disposable income and equivalised final income, which provide additional indicators of a household's relative wellbeing when compared to other households of different size and composition
- new tables presenting data by equivalised disposable household income quintile, equivalised final income quintile, net worth quintile, contribution of government pensions and allowances to gross household income, states and territories
- tables showing comparison of data with previous studies are no longer included as the extent of change in the 2003-04 study means that it is not possible to make comparisons over time. However, Appendices 4 and 5 provide some limited comparisons of 2003-04 data with 1998-99 data.

EFFECTS OF ROUNDING

Where figures have been rounded, discrepancies may occur between sums of the component items and totals. Published percentages are calculated prior to rounding of the figures and therefore some discrepancy may exist between these percentages and those that could be calculated from the rounded figures.

Summary of Findings

SUMMARY OF FINDINGS

INTRODUCTION

This publication presents the results of a study of the effects of government benefits and taxes on the distribution of income among private households in Australia in 2003-04.

Benefits and taxes included in the study were restricted to those that are relatable to particular types of households and household expenditure. Household income is increased directly by the Australian government through social assistance benefits in the form of regular cash payments, such as the age pension and family tax benefit, and indirectly by government expenditures such as those on health and education. On the other hand, household income is reduced by taxes on personal income (direct taxes) and by taxes on production (indirect taxes) passed on in the prices households pay for goods and services.

The study excludes government taxes and expenditure that do not relate directly to particular types of households or household expenditure, such as government revenue from corporate taxes and spending on defence, public order and safety, transport and communications.

The most restricted concept of income used in the study is referred to as private income, while the most extensive is final income. Private income is all regular cash payments received excluding social assistance benefits in cash, i.e. wages and salaries, profit/loss from own unincorporated business, investment income and private cash transfers. Adding social assistance benefits in cash (direct Australian government benefits) to private income gives gross income. Disposable income is derived by subtracting taxes on personal income from gross income.

The value of government social transfers in kind for education, health, housing and social security and welfare (indirect benefits) is added to disposable income to get disposable income plus social transfers in kind. Final income is equal to disposable income plus social transfers in kind less taxes on production.

Equivalised household income is derived after applying an equivalence scale to income thereby taking into account households of different sizes and composition. When household income is adjusted using an equivalence scale, the equivalised income can be viewed as an indicator of the economic resources available to a standardised household. In this study, an equivalence scale has been applied to the estimates of household private, disposable and final income.

The methodology used in this study is similar to that used in other studies in Australia and overseas. However, there are other approaches that could have been taken which might have produced different results. Details of the study methodology are given in the Explanatory Notes. The results are dependent on the assumptions that are inherent in the methodology.

GOVERNMENT BENEFITS AND TAXES ALLOCATED

Of the total Commonwealth, state and local government taxation revenue in 2003-04, the study allocates taxes of $145,623 million out of $245,856 million or 59% of total government revenue (net of the subsidies). Of total government expenditure of $295,180 million, the study allocates benefits of $151,075 million or 51% of total government expenditure.

The unallocated amounts mainly reflect taxation and government expenditure that are not conceptually relatable to individual households, but they also reflect the lack of suitable indicators on which to allocate some taxation revenue, such as capital gains tax, and some benefits. In comparison, the 1998-99 study allocated 53% of government revenue and 50% of government expenditure.

The most significant factor in the increased allocation of government revenue between the 1998-99 and 2003-04 studies was the adoption of a substantially improved methodology for allocating taxes on production. For the 1998-99 study, the previous methodology allocated 42% of taxes on production to individual households. Applying the new method to the 1998-99 Household Expenditure Survey (HES) data resulted in 65% of taxes on production being allocated to individual households.

The introduction of the Goods and Services Tax (GST) since the 1998-99 study, both widened the base for taxes on production and resulted in taxes on production being more directly attributable to reported household expenditures than was possible with the previous indirect taxation arrangements that it replaced. This change in taxation arrangements, coupled with the new methodology for allocating the remaining indirect taxes to individual households, was expected to result in an even higher proportion of all production taxes being allocated to individual households in 2003-04 than was achieved in the recompiled estimates for 1998-99.

However, in the 2003-04 HES there was a significant increase in the apparent underreporting by households of expenditures on highly taxed products, such as gambling and tobacco. It is estimated that the under-allocation of tax due to underreported expenditures increased from about $5 billion in 1998-99 to $15 billion in 2003-04. As a result only 60% of taxes on production were allocated to individual households in 2003-04.

More benefits than taxes were allocated in the current study so that on average, benefits exceed taxes. This outcome is not significant in itself as there is not a direct correspondence between the level of government benefits provided to any sector and the means used to finance those benefits.

DIFFERENCES BETWEEN HOUSEHOLDS

The system of government benefits and taxes in Australia has been designed to assist those in the community who are most in need of financial support. The results of this study give an indication of the extent of the redistributive impact between different groups in the population. The following sections summarise the impact on population groups defined in terms of life cycle stages and in terms of high and low income groups.
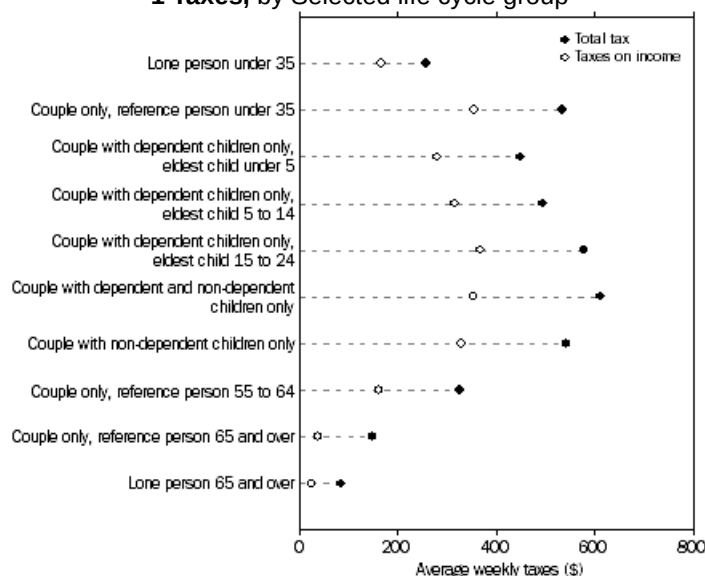
The allocation of benefits and taxes differs between households, reflecting that characteristics such as household composition, life cycle stages, household size and income have an impact on these allocations.
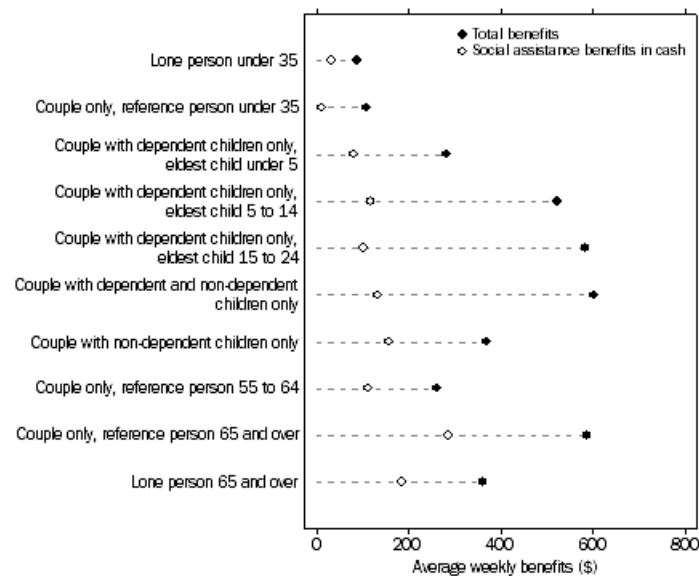

LIFE CYCLE STAGES

A life cycle includes childhood, early adulthood and the forming and maturing of families. The life cycle stages used in this study provide a simplified view of life cycle possibilities as illustrated in tables 21 and 22. Some household types such as one parent with dependent children and lone persons aged 35-65 years are not included in this sequential analysis.

The following two graphs look at total taxes (taxes on income and taxes on production) paid and total benefits (social assistance benefits in cash and social transfers in kind) received on average by these life cycle groups.

1 Taxes, by Selected life cycle group

2 Government Benefits, by Selected life cycle group

Total benefits
○ **Social assistance benefits in cash**

Lone person under 35
Couple only, reference person under 35
Couple with dependent children only, eldest child under 5
Couple with dependent children only, eldest child 5 to 14
Couple with dependent children only, eldest child 15 to 24
Couple with dependent and non-dependent children only
Couple with non-dependent children only
Couple only, reference person 55 to 64
Couple only, reference person 65 and over
Lone person 65 and over

0   200   400   600   800
Average weekly benefits ($)

In the first two stages of the life cycle, which consist of young lone person and young couple only households, social assistance benefits in cash tend to be low. This relates to their youth, the absence of children (and therefore family tax benefit and parenting payment) and the high employment levels in these households. Social transfers in kind also tend to be low in these early life cycle stages because the household size is small, the members do not usually receive school benefits and, due to their age, are less likely to use health services. Taxes on income, which increase progressively with the level of income, are lower for lone persons than for couple only households where, on average, more than one person is earning income and paying taxes. Similarly, taxes on production are lower for lone person households than for couple only households because household expenditure is relatively low.

Couples with dependent children generally receive higher levels of social assistance benefits in cash and social transfers in kind than young couple only and young lone person households. Social assistance benefits are higher because the households tend to be eligible for family tax benefit, parenting payment and other benefits such as student allowances. Social transfers in kind are also higher. These households receive greater education and health benefits due to the increase in household size and also greater social security and welfare benefits. Taxes on income for couples with dependent children, are higher than young lone person households, with household income increasing as more household members participate in the labour force. Taxes on production also increase as households spend more of the higher income.

Households including couple with non-dependent children only, receive a similar level of social assistance benefits in cash to couple households with dependent children. However, for these households age and disability support pensions become the most significant sources of these benefits. Social transfers in kind are lower because fewer household members use education services. Levels of income and expenditure are both high, resulting in higher taxes on income and taxes on production.

Once the children leave (couple only with reference person 55 to 64 group), the households are smaller and contain fewer members who are employed. The incomes and expenditures of these households tend to be lower so they pay less in taxes.

In the last two stages, i.e. couple only reference person 65 and over and lone person 65 and over, households receive the highest levels of social assistance benefits in cash, consisting mainly of the age and Veterans' Affairs pensions. Social transfers in kind are high due to greater use of health services. Taxes on income are very low because income is low and taxes on production are low because spending is low.

The differences between benefits and taxes allocated to the selected life cycle stages is partly a consequence of household size and composition. Equivalising household income takes into account the differing size and composition of households. Comparing equivalised private income and equivalised final income for these life cycle stages provides a better indication of the effect of government benefits and taxes on the relative economic well being of these households.

Equivalised private income is higher in the early stages of the life cycle with young couple only households having the highest average equivalised private income. It remains relatively stable through the stages of family formation and with dependent and non-dependent children at home. In the later stages of the life cycle it declines with the categories for people aged 65 and over having the lowest average equivalised private income. The average equivalised private income of the highest income group (young couple only households) is more than 5 times that of the lowest income group (lone person aged 65 and over).

The differences between the various life cycle groups is much less marked when looking at equivalised final income. As for equivalised private income, equivalised final income is highest for young couples and lowest for lone persons aged 65 and over. However, the equivalised final income for young couples is only 62% higher than the equivalised final income of lone persons aged 65 and over.

3 Equivalised private and equivalised final income, by Selected life cycle group
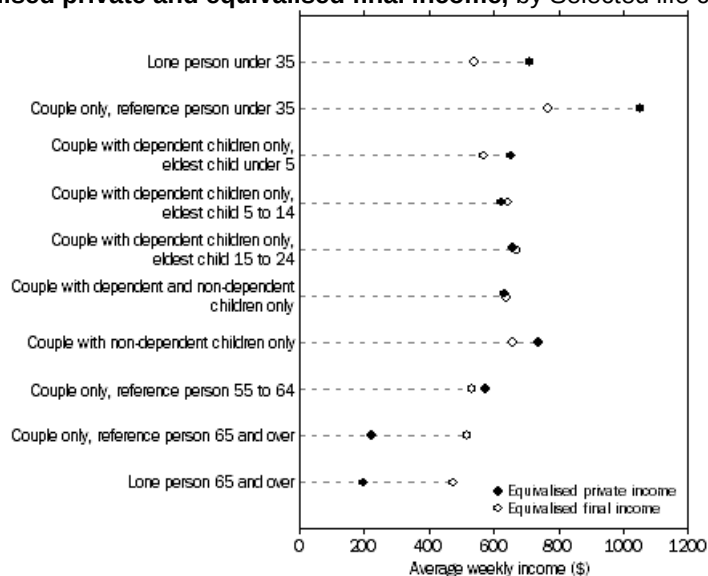
OTHER HOUSEHOLD GROUPS

About one-third of Australian households are not covered by the life cycle groups in graphs 1 to 3. The household groups which are not included in the life cycle analysis are: one parent with dependent children (6.6%); lone persons aged 35 to 64 (11.9%); couple only, reference person aged 35 to 54 (5.6%); group households (3%); and all other households (6.6%).

One parent with dependent children

One parent with dependent children households are a population group of particular interest. This group has higher net benefits (benefits less taxes) than any of the life cycle groups considered above. Households in this group receive very high levels of social assistance benefits in cash, consisting mainly of family tax benefit and parenting payment. The average value of social assistance benefits in cash for this group was $293 per week compared to $136 per week for all households. Social transfers in kind are also relatively high because of high use of education services (average value of $383 per week compared to average value of $238 per week for all households).

Taxes on income and taxes on production are both low, since both income and expenditure are low. Taxes on income for this group averaged $95 per week as compared to $213 per week for all households and taxes on production averaged $108 per week compared to $147 per week for all households.

The average weekly equivalised private income of this group was just 46% of the average weekly equivalised private income of all households. However due to higher net benefits, the average equivalised final income of this group was a much higher proportion of average equivalised final income of all households (93%).

Lone persons aged 35 to 64

Within this group, the characteristics of the component age subgroups are quite different (see tables 33 and 34 for details). For the younger subgroups (aged 35 to 44, and 45 to 54) taxes outweigh benefits. Lone persons aged 35 to 44 pay the highest taxes of all lone person households, and receive low benefits, resulting in an average net tax payment of $194 per week. The average equivalised private income of these households is 26% greater than the average equivalised private income of all households while their equivalised final income is 9% lower than that of all households. Lone persons aged 45 to 54 pay net taxes of $133 per week. Their average equivalised private income is 10% greater than the average for all households and their equivalised final income is 14% lower than that of all households.

For the older subgroup (aged 55 to 64), average total benefits received ($208) was higher than average total taxes paid ($175). Their average equivalised private income is two thirds of the average for all households and their equivalised final income is 71% of that of all households.

Couple only, reference person aged 35 to 54

Both subgroups within this group (aged 35 to 44, and 45 to 54) pay substantial net weekly taxes compared to all couple only households (see tables 31 and 32 for details). Overall their equivalised private income is 57% above the average for all households and their equivalised final income is 15% above the average.

HIGH AND LOW INCOME GROUPS

Low income households receive more social benefits in cash and social transfers in kind and pay less taxes than high income households. The effects of different benefits and taxes vary with the level of household income. Social assistance benefits in cash and social transfers in kind increase with household size and decrease as levels of household income rise. The net effect of benefits and taxes is to increase the average income of households in the lower income groups, and decrease the average income of households in the higher income groups.

The redistribution of income from high to low income households can be seen more clearly in an analysis of equivalised private income quintile groups (graph 4). Equivalised private income quintile groups are formed by ranking households based on the level of their private income, after adjusting for the size and composition of the household. If no adjustment is made for size and composition, larger households tend to appear in the higher quintile groups as no account is taken of the need for their income to support a larger number of people.

4 Equivalised private and equivalised final income, by Equivalised private income quintile
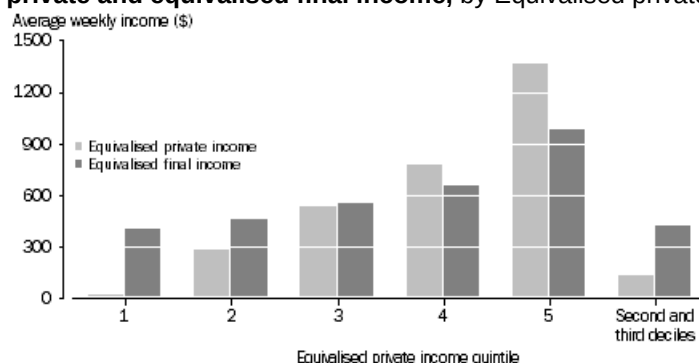
The net effect of benefits and taxes, as shown in this study, was to increase the average income of households in the three lower quintiles and decrease the average income of households in the two higher quintiles. In the lowest quintile, average equivalised private income was $26 per week and average equivalised final income was $403 per week. In the highest quintile, the average equivalised private income was $1,366 per week and average equivalised final income was $983 per week.

The income of households in the second and third deciles has also been included in the graph. This group is often used to represent low income households since the income of many households in the lowest decile may not accurately reflect the level of their economic wellbeing (see paragraphs 22 and 23 of the Explanatory Notes). The average equivalised private income of households in the second and third decile was $132 per week, whereas their average equivalised final income was $427 per week.

Within the lowest equivalised private income quintile, the share of income received by households increased from 0.9% using the equivalised private income measure to 13.2% using the equivalised final income measure. For households in the highest quintile, the income share decreased from 45.7% for equivalised private income to 32.1% for equivalised final income. The share of the income received by households in the second and third decile increased from 4.4% for equivalised private income to 13.9% for equivalised final income.

5 Distribution of household income, benefits and taxes, by Equivalised private income quintile

| | Equivalised private income quintile | | | | | | |
	Lowest quintile %	Second quintile %	Third quintile %	Fourth quintile %	Highest quintile %	All households(a) %	Second and third deciles %
Private income	0.8	8.9	17.0	25.7	47.6	100.0	4.3
Benefits							
Social assistance benefits in cash	60.8	23.7	9.9	3.9	1.7	100.0	44.5
Social transfers in kind	29.8	22.5	18.7	15.8	13.2	100.0	26.6
Total	41.1	23.0	15.5	11.5	9.0	100.0	33.1
Taxes							
Taxes on income	0.3	4.6	13.3	23.6	58.2	100.0	1.3

Taxes on production	13.4	15.2	18.5	22.9	30.0	100.0	14.7
Total	5.6	9.0	15.4	23.3	46.7	100.0	6.8
Final income	14.0	14.2	17.0	21.2	33.5	100.0	14.1
Equivalised private income	0.9	9.6	17.9	25.9	45.7	100.0	4.4
Equivalised final income	13.2	15.1	18.1	21.6	32.1	100.0	13.9

(a) Includes households with nil or negative total income.

Both social assistance benefits in cash and social transfers in kind decreased as levels of household income rose. The lowest quintile received 60.8% of social benefits in cash and 29.8% of social transfers in kind whereas the highest quintile received 1.7% of social assistance benefits in cash and 13.2% of social transfers in kind. Households in the second and third deciles received 44.5% of social assistance benefits in cash and 26.6% of total social transfers in kind.

The payment of taxes on income and, to a lesser extent taxes on production, increase with income. Households in the lowest quintile paid 0.3% of total taxes on income while households in the highest quintile paid 58.2%. For taxes on production, households in the lowest quintile paid 13.4% while households in the highest quintile paid 30%. Households in the second and third deciles paid 1.3% of total taxes on income and 14.7% of total taxes on production.

STATES AND TERRITORIES

The allocation of government benefits and taxes varied across states and territories.

Estimates of social transfers in kind by state and territories may not be entirely accurate, since for some components the allocation does not take into account the varying expenditure by state and territory governments. In addition, there may be some inconsistencies in the classification of government expenditure by state governments in the source data, which could impact on comparability.

Households in the Australian Capital Territory (ACT) received the lowest social assistance benefits in cash and paid the highest taxes on income, whereas households in Tasmania received the highest social assistance benefits in cash and paid the lowest taxes on income.

Social transfers in kind varied with Northern Territory (NT) households receiving the highest average total benefits. Households in the ACT received the highest average education benefits, households in the NT received the highest average health benefits, whereas social security and welfare benefits were highest on average for households in Tasmania.

Taxes on production paid by households were highest in NT and the ACT. NT households paid the highest taxes on production on alcoholic beverages and tobacco products. Households in the ACT paid the highest taxes on production on motor vehicle fuel, meals out and fast food, and clothing and footwear. Households in New South Wales (NSW) paid the highest taxes on ownership of dwellings.

6 Equivalised income levels, States and territories - All households
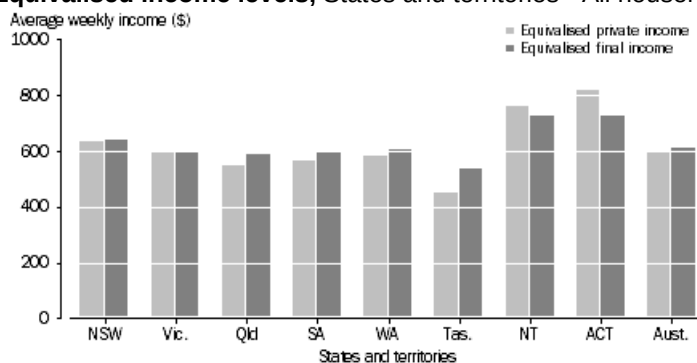
Average income also varies between states and territories. Average income was highest in the ACT and NT. Average equivalised private income in the ACT is 37% higher than the average for Australia. Average equivalised final income, while still significantly higher than the Australian average, is only 18% higher, reflecting the net taxes paid by ACT households. Similarly in NT, equivalised private income is 28% higher than the Australian average and equivalised final income is 18% higher than the Australian average. In Tasmania, which has the lowest average income, equivalised private income is 24% below the Australian average and equivalised final income is 12% below the average, reflecting the net benefits received by Tasmanian households.

About this Release

Describes and provides results from the study of the effects of government benefits and taxes on household income in 2003-04 as revealed by the Household Expenditure Survey. Extensive data are published on household direct cash benefits (e.g. age pension), personal tax liabilities, indirect benefits from government outlays on health, education, housing, social security and welfare, and indirect taxes paid on goods and services.

Explanatory Notes

Explanatory Notes

EXPLANATORY NOTES

INTRODUCTION

1 This publication presents the results of a study of the effects of taxation and government expenditure on the distribution of income among private households in Australia in 2003-04. Previous studies were conducted in relation to 1984, 1988-89, 1993-94 and 1998-99. The approach taken is only one of several ways of undertaking such a study.

CHANGES IN THIS ISSUE

2 There are several significant changes between the 2003-04 study and the previous studies. There have been changes in the data sources used in the study, and in the study methodology. Consequently the results of this study are not directly comparable with the results of previous studies. The main changes that have impacted on this study are outlined in this section.

Changes in Household Expenditure Survey 2003-04

3 The Household Expenditure Survey (HES), which is one of the major data sources used in the study, underwent a number of major changes in 2003-04. The survey was integrated with the 2003-04 Survey of Income and Housing (SIH). This led to the redefinition of a number of income items so that they were aligned with the corresponding SIH data items, resulting in some loss of comparability between 1998-99 and 2003-04 HES data for private income and taxes on income.

4 The main data items affected were:

- income from wages and salaries no longer includes income from bonuses (including leave loading); in 2003-04 these bonuses averaged $13.55 per week per household
- income no longer includes the value of selected goods and services provided free or at reduced cost by employers to employees for their own private use or goods and services obtained from a person's own unincorporated business (in the 1998-99 HES the value of incidental items such as food and motor vehicle fuel were included); in 2003-04 the value of these goods and services averaged $1.30 per week per household
- income no longer includes the income of children aged under 15 years; in 2003-04 this income averaged $0.30 per week per household
- the integration also resulted in a change to income tax liability estimates (referred to as taxes on income in this study), which are now derived only using data items available in the SIH
- the survey included an expanded range of questions to collect details about income - in particular, information was collected about expected income in the current financial year from own unincorporated business and investments, and therefore estimates for these components of income no longer depend on data collected with respect to the previous financial year.

5 The integration of the surveys also resulted in changes to the set of independent demographic benchmarks used to calibrate the sample weights. In addition, the HES estimates were calibrated to SIH estimates of tenure type and SIH estimates of household income by state and territory and broad source of income.

Changes in the study of the effects of government benefits and taxes on household income:

6 The main changes in this study were:

- the methodology for estimating and allocating taxes on production has changed, with more taxes being allocated to households. 1998-99 data for this component have been reestimated on the 2003-04 basis. For more information see Appendix 4
- some government expenditure transaction types that were included in social transfers in kind allocated to households in 1998-99 have been treated differently in this study. These relate to subsidy expenses (since they are treated as part of taxes on production), and capital transfer expenses (since there is no obvious way to measure how the resulting benefits accrue to households, and since they do not necessarily accrue to households within the same period); in 2003-04 these transactions averaged $0.61 per week per household for education, $0.49 for health and $1.19 for social security and welfare
- government revenue from sales of goods and services has been offset against expenses before allocation. In the 1998-99 study only the estimated revenue under the higher education contribution scheme (HECS) was offset against expenses, and the estimated revenue from HECS payments understated the actual revenue. If the 1998-99 method for treating government revenue had been applied in 2003-04, there would have been an extra $9.02 per week per household allocated for education, an extra $7.31 for health and $1.12 for social security and welfare
- a revised methodology for allocating government expenditure on the child care benefit was introduced using more sophisticated modelling techniques
- recording of transactions in Government Finance Statistics (GFS) (which are used to identify the amount of government expenditure to be allocated in the study) is likely to be more accurate than in 1998-99. Accrual accounting was introduced into GFS in 1998-99 and there are a number of problems with the data for that year
- some data sources used in allocating health expenditure have changed which may have impacted on the distribution of the allocation.

Changes in the contents of this issue

7 The following changes have been made to the content of the publication:

- adoption of revised terminology, consistent with the 1993 **System of National Accounts** and latest government finance classifications. **Direct benefits** are now referred to as **Social assistance benefits in cash**, **Indirect benefits** as **Social transfers in kind**, **Direct taxes** as **Taxes on income** and **Indirect taxes** as **Taxes on production**
- revised classifications for present data on social assistance benefits in cash and taxes on production
- inclusion of the items equivalised private, disposable and final income, which provide additional indicators of a household's relative wellbeing when compared to other households of different size and composition
- new tables presenting data by equivalised private, disposable and final income quintile, net worth quintile, contribution of government pensions and allowances to gross household income, states and territories
- tables showing comparisons of data with previous studies are no longer included. However, Appendices 4 and 5 compare 2003-04 data with the 1998-99 study as well as explain the changes in the methodology between the two studies.

INCOME CONCEPTS AND DEFINITIONS

8 A major determinant of economic wellbeing for most people is the level of income they and other family members in the same household receive.

9 While income is usually received by individuals, it is normally shared between partners in a couple relationship and with dependent children. To a lesser extent, it may be shared with other children, other relatives and possibly other people living in the same household, for example through the provision of free or cheap accommodation. This is particularly likely to be the case for children other than dependants and other relatives with low levels of income of their own. Even when there is no transfer of income between members of a household, nor provision of free or cheap accommodation, members are still likely to benefit from the economies of scale that arise from the sharing of dwellings.

10 Household characteristics, including household income, are therefore the main information required for analysing income distribution. In this publication, the income distribution measures are all calculated with respect to households as most of the relevant characteristics of persons relate to their household circumstances. Such measures are sometimes known as household weighted estimates.

11 Income refers to regular and recurring cash receipts from employment, investments and transfers from government, private institutions and other households. A set of income concepts have been used in this study to

describe the effects of different types of government benefits and taxes.

Private Income

12 The starting point is private income, which is the most restricted concept of income used in the study. It comprises all regular cash payments received excluding social assistance benefits in cash. Sources from which private income may be received include:

- wages and salaries (whether from an employer or own incorporated business)
- profit/loss from own unincorporated business (including partnerships)
- investment income (interest, rent, dividends, royalties)
- private cash transfers (e.g. superannuation, regular workers' compensation, income from annuities and child support, and other transfers from other households).

13 Receipts which are excluded from private income because they are not regular or recurring cash payments include:

- income in kind including employee benefits such as the provision of a house or a car and employer contributions to pension and superannuation funds - however, income in kind provided as part of a negotiated salary sacrifice arrangement is regarded as cash or "near cash" income and included within the scope of income presented in this publication; it is estimated that about two-thirds of salary sacrificed income is included in the 2003-04 estimates of gross income used in this study
- capital transfers such as inheritances and legacies, maturity payments on life insurance policies, lump sum compensation for injuries or other damage
- capital gains and losses.

Gross Income

14 Gross income is the sum of private income and Australian government social assistance benefits in cash such as age pension, disability support pension, Veterans' Affairs pension, family tax benefit, parenting payment, unemployment and student allowances.

Disposable Income

15 Disposable income is derived by deducting estimates of taxes on income from gross income. Disposable income better represents the economic resources available to meet the needs of households.

Disposable income plus social transfers in kind

16 The value of government social transfers in kind for education, health, housing and social security and welfare is added to disposable income to give disposable income plus social transfers in kind.
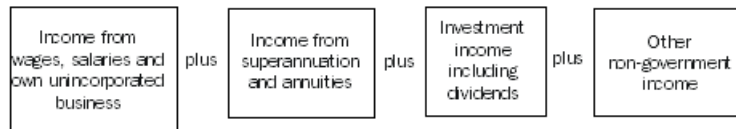
Final Income

17 Final income is the most extensive concept of income used in the study. Final income is equal to household disposable income plus social transfers in kind, less taxes on production.

18 The following diagram illustrates these different income concepts.

INCOME CONCEPTS AND COMPONENTS

Income concepts

Income components

Private income:
from sources
other than
government
benefits

Income from wages, salaries and own unincorporated business	plus	Income from superannuation and annuities	plus	Investment income including dividends	plus	Other non-government income

plus

Gross income:
private income plus
social assistance
benefits in cash

Social assistance benefits in cash

minus

Disposable income:
gross income
minus taxes on
income

Taxes on income

Government expenses

plus

**Disposable income
plus social transfers
in kind:**

Government revenue

Social transfers in kind

minus

Final income:
income after
allocated benefits
and taxes

Taxes on production
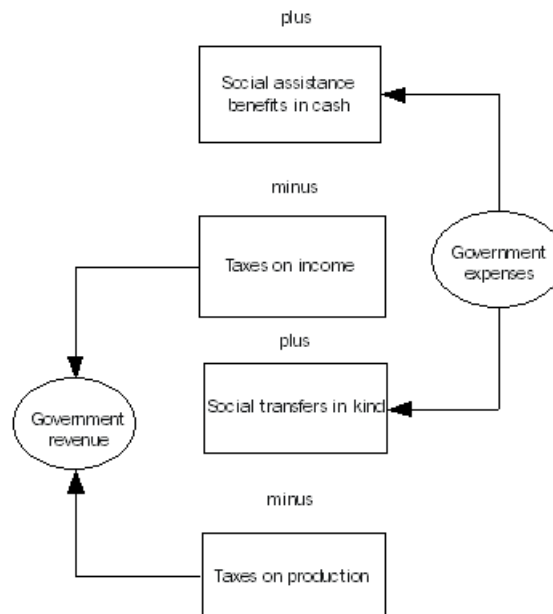
Equivalised Income

19 Household income can also be adjusted by the application of an equivalence scale to facilitate comparison of income levels between households of differing size and composition, reflecting the requirement of a larger household to have a higher level of income to achieve the same standard of living as a smaller household. Where income is negative, it is set to zero equivalised income.

20 The equivalence scale has been used to adjust private, disposable and final income for differing household sizes and composition. For more information on equivalised income refer to Appendix 2.

Lowest income decile

21 While equivalised income generally provides a useful indicator of economic wellbeing, there are some circumstances which present particular difficulties. Some households report extremely low and even negative income in the survey, which places them well below the safety net of income support provided by social security pensions and allowances. Households may underreport their incomes in the survey at all income levels, including low income households. However, households can correctly report low levels of income if they incur losses in their unincorporated business or have negative returns from their other investments.

22 Studies of income and expenditure reported in the past HES surveys have shown that such households in the lowest income decile and with negative gross incomes tend to have expenditure levels that are comparable to those of households with higher income levels (and slightly above the average expenditures recorded for the fifth income decile). This suggests that these households have access to economic resources, such as wealth, or that the instance of low or negative income is temporary, perhaps reflecting business or investment start up. Other households in the lowest income decile in past surveys had average incomes at about the level of the single pension rate, were predominantly single person households, and their principal source of income was largely government pensions and allowances. However, on average, these households also had expenditures above the average of the households in the second income decile, which is not inconsistent with the use of assets to maintain a higher standard of living than implied by their incomes alone.

23 It can therefore be reasonably concluded that many of the households included in the lowest income decile are unlikely to be suffering extremely low levels of economic wellbeing. Income distribution analysis may lead to

inappropriate conclusions if such households are used as the basis for assessing low levels of economic wellbeing. For this reason, tables showing statistics classified by equivalised income quintile include a supplementary category comprising the second and third income deciles, which can be used as an alternative to the lowest income quintile (for an explanation of quintiles and deciles, see Appendix 1).

24 With the 2003-04 HES, analysis of households in the lowest income decile can be improved through direct observation of the expenditure and net worth of these households. An examination of these low income households is presented in Appendix 4 of **Household Wealth and Wealth Distribution, Australia, 2003-04** (cat.no. 6554.0).

MAJOR DATA SOURCES

25 The three major data sources used in this study are the 2003-04 ABS Household Expenditure Survey (HES), ABS Government Finance Statistics, and Input-Output tables from the **Australian System of National Accounts** (ASNA).

HOUSEHOLD EXPENDITURE SURVEY

26 The 2003-04 HES collected detailed information about the expenditure, income, assets, liabilities and household characteristics of private dwellings throughout Australia. The sample consisted of approximately 7,000 households, which were enumerated from July 2003 to July 2004. The summary of the results from the survey was published in **Household Expenditure Survey, Australia: Summary of Results, 2003-04** (cat.no. 6530.0).

27 Previous Household Expenditure Surveys were conducted in 1974-75, 1975-66, 1984, 1988-89, 1993-94 and 1998-99.

28 Information reported in the HES is used as the basis for modelling the effects of various government benefits and taxes on household income. The survey provided details on the composition of households and the characteristics of their members, the level and sources of their income, and the patterns of their expenditure. Household income data were used to provide measures of private income and social assistance benefits in cash from the government; income, personal and household characteristics and taxation criteria for 2003-04 were used to calculate taxes on income paid; characteristics of household members and their expenditure patterns were used to identify recipients of social transfers in kind from government; and expenditure data were used to calculate taxes on production paid.

29 The **Household Expenditure Survey and Survey of Income and Housing User Guide, Australia, 2003-04** (cat. no. 6503.0), describes the definitions, concepts, methodology and estimation procedures used in the HES and the SIH.

Survey scope and coverage

30 The survey collects information by personal interview from usual residents of private dwellings in urban and rural areas of Australia, covering about 98 per cent of the people living in Australia. Private dwellings are houses, flats, home units, caravans, garages, tents and other structures that are used as places of residence at the time of interview. Long-stay caravan parks are also included. These are distinct from non-private dwellings which include hotels, boarding schools, boarding houses and institutions. Residents of non-private dwellings are excluded.

31 The survey also excludes:

- households which contain members of non-Australian defence forces stationed in Australia
- households which contain diplomatic personnel of overseas governments
- households in collection districts defined as very remote or Indigenous Communities - this has only a minor impact on aggregate estimates except in the Northern Territory where such households account for about 23% of the population.

32 While no adjustment has been made to the HES population estimates to compensate for limited scope, efforts have been made to ensure that the appropriate share of government expenditures has been allocated to the HES population. This was achieved by calculating average benefits on the basis of benchmark estimates of the total population eligible for particular social transfers in kind.

Final sample

33 The final sample on which estimates were based, is composed of households for which all necessary information is available. The information may have been wholly provided at the interview (fully-responding) or may have been completed through imputation for partially responding households. Of the selected dwellings, there were 9,753 households in scope of the survey, of which 6,957 (71%) were included as part of the final HES estimates. The final sample consists of those 6,957 households, comprising 13,748 persons aged 15 years and over.

Reliability of estimates

34 The estimates provided in the survey are subject to two types of error, non-sampling and sampling error.

35 Non-sampling error can occur in any collection, whether the estimates are derived from a sample or from a complete collection such as a census. Sources of non-sampling error include non-response, errors in reporting by respondents or recording of answers by interviewers, and errors in coding and processing the data. Non-sampling errors are difficult to quantify in any collection. However, every effort is made to reduce non-sampling error to a minimum by careful design and testing of the questionnaire, training of interviewers and data entry staff, and extensive editing and quality control procedures at all stages of data processing.

36 The estimates are based on a sample of possible observations and are subject to sampling variability. The estimates may therefore differ from the figures that would have been produced if information had been collected for all households. A measure of the sampling error for a given estimate is provided by the standard error, which may be expressed as a percentage of the estimate (relative standard error). Further information on sampling variability is given in Appendix 3.

Underestimation of some expenditure

37 The average expenditure on tobacco recorded by households in the sample is well below the level which would be expected from estimates of apparent consumption of this item i.e. recorded Australian production plus imports less exports. Reported expenditure on gambling is also well below the expected level. No adjustment has been made to any of the reported expenditure data.

GOVERNMENT FINANCE STATISTICS

38 The ABS regularly produces summaries of government revenues and expenses. These government finance statistics (GFS) provide Commonwealth, state or territory and local government taxation revenues classified by type of tax and expenditures classified by purpose and type of economic transaction. The Government Purpose Classification (GPC) identifies the functional areas to which expenses relate (e.g. health, housing and welfare) while the Economic Transactions Framework (ETF) identifies the type of transaction. For example, direct cash payments to households are distinguished from expenses relating to the payment of administrative staff and from expenses on building construction. It is from the combination of these classifications that direct and indirect expenses in various programs were identified.

39 Estimates of total government expenses (for Commonwealth, state or territory and local government) used for social transfers in kind, and to compare the results of the allocation of social assistance benefits in cash, were specially tabulated and reflect 2003-04 data at the time of release of 2004-05 GFS. Taxation information, used to assess the results of tax imputation methods, was obtained from the 2004-05 issue of **Taxation Revenue** (cat. no. 5506.0).

INPUT-OUTPUT TABLES

40 Input-Output tables form part of the ASNA and provide a means of undertaking detailed analysis of the process of production, the use of goods and services (products) and of the income generated in that production. They show, for the economy as a whole and for groups of products, the total resources in terms of domestic output and imports, and the uses of goods and services in terms of intermediate consumption, final consumption, gross capital formation and exports.

41 The estimation of the incidence of taxes on production to households is based on extensive use of these Input-Output tables. **Australian National Accounts: Input-Output Tables, 2001-02** (cat. no. 5209.0.55.001) includes the supply-use tables with detailed explanatory notes on the data sources, content and methods of construction used.

METHODS

UNIT OF ANALYSIS

42 The household is the basic unit of analysis in this publication. A household consists of one or more persons, at least one of whom is at least 15 years of age, usually resident in the same private dwelling. The persons in a household may or may not be related.

43 The household is adopted as the basic unit of analysis because it is assumed that sharing of the use of goods and services occurs at this level. If smaller units, say persons, are adopted, then it is difficult to know how to attribute to individual household members the use of shared items such as food, accommodation and household goods. Intra-household transfers are excluded. For example, if one member of the household were to pay board to another member of the same household then this is not considered as an increase in the amount of income or housing costs of the household.

BENEFITS AND TAXES ALLOCATED

44 The aim of the study has been to allocate only those benefits and taxes relevant to households. No attempt has been made to allocate the whole of government expenditure and revenue. Those government expenses and revenues which are allocated and those that are not allocated in the study are illustrated in the following graphs.
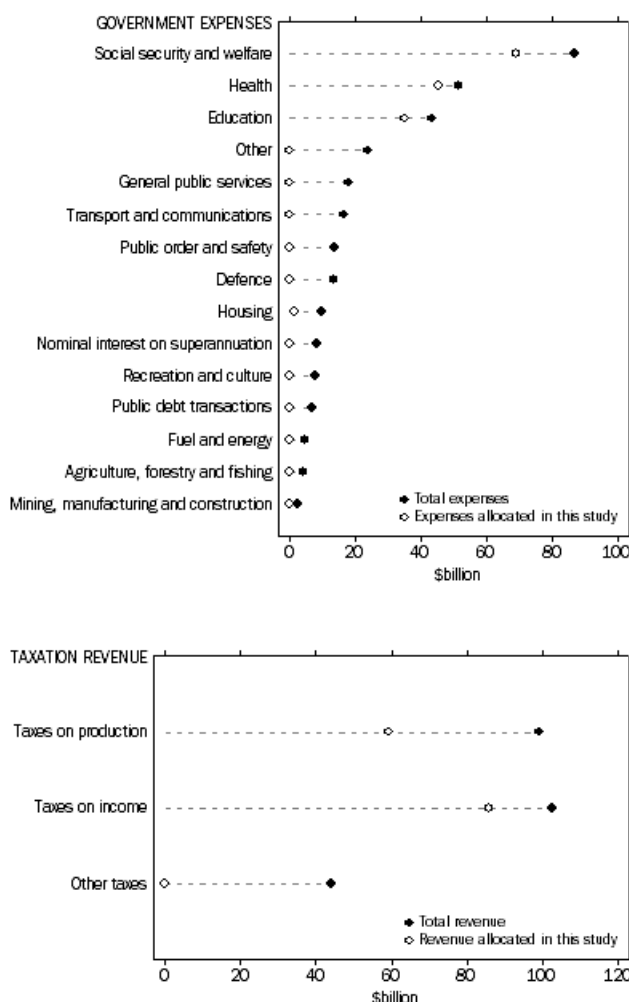
45 In many cases, the decision to allocate or not to allocate was guided by the availability of data for appropriate allocation to the household level. For social assistance benefits in cash, allocation of government expenses relating to these cash payments was restricted to cash payments covered by the HES income questionnaire. Taxes on income not allocated include taxes not directly relevant to the household sector such as corporate taxes, and taxes relating to some household receipts, such as lump sums, which were not collected in sufficient detail in the HES income questionnaire.

46 Many social transfers in kind were not allocated because:

- there was no clear conceptual basis for allocation
- they related to segments of the population not covered by HES
- target groups could not be identified within HES data
- expenditure on target groups could not be isolated in GFS data.

47 Taxes on production were calculated by applying intermediate and final tax rates derived from the **Australian National Accounts: Input-Output Tables 2001-02** (cat. no. 5209.0.55.001) to household expenditure. Because household expenditure does not account for the full amount of production and consumption recorded in the Input-Output tables, only a proportion of taxes on production was allocated to households.

SOCIAL ASSISTANCE BENEFITS IN CASH

48 Social assistance benefits in cash were defined as selected payments in cash by Commonwealth, state or territory and local government to Australian residents and cover:

- age pension
- disability support pension
- Veterans' Affairs pension
- family tax benefit
- parenting payment
- unemployment and student allowances such as newstart allowance, youth allowance, sickness allowance, mature age allowance, abstudy/austudy allowances
- other government pensions and allowances such as carer payment, carer allowance, widow allowance, special benefit, wife pension, partner allowance etc.

49 Social assistance benefits in cash were allocated as reported in the HES. Pensions and allowances from overseas governments were excluded from these payments and included in private income.

50 National accounts figures for 2003-04 show that social assistance benefits paid in cash to Australian households were $72,438 million. However, this figure includes some health benefits, which for practical reasons are allocated as health related social transfers in kind (see below). The social assistance benefits in cash recorded in GFS figures that most closely correspond to the estimates provided from the HES are those relating to social security and welfare and education. The expenses on social assistance in cash in these areas amounted to $68,740 million. Of this amount, the study allocated $55,003 million to households. The discrepancy between expenses reported in GFS and the amount allocated is due to:

- scope exclusions in the HES. The HES does not cover the whole population, and in particular, excludes residents of special dwellings. Many residents of special dwellings, such as nursing homes, are recipients of these benefits
- cash benefits that are not covered by income questions in the HES. These benefits comprise irregular or one-off cash payments such as crisis or disaster payments
- the reconciliation credit element of family tax benefit which was not treated as a 2003-04 receipt in HES
- under-reporting of government benefits and pensions by HES respondents.

SOCIAL TRANSFERS IN KIND

51 Social transfers in kind consist of goods and services provided free or at subsidised prices by the government. In the study, allocation of social transfers in kind was restricted to those arising from the provision of education, health, housing, social security and welfare services.

52 Except for government expenditure on housing (see details following), social transfers in kind were based on the cost to government of the provision of those services. More specifically, the total value of social transfers in kind was defined as Commonwealth, state or territory and local government expenses, net of intra-government transfers, minus personal benefit payments paid in cash minus government revenue from the sale of goods and services. In the case of health benefits, however, some benefits paid in cash which were not collected as personal benefits in the HES are allocated together with the health social transfers in kind.

Education

53 Social transfers in kind were allocated for school education, tertiary education and other education benefits.

School education includes benefits from pre-school education, primary and secondary education, student transportation, special education and education n.e.c. Tertiary education includes benefits from university education, technical and further education, and tertiary education n.e.c.

School education

54 Government expenses relating to pre-school education were allocated to households containing children aged 3, 4 or 5 years. An average benefit per child attending pre-school in each state and territory was derived by dividing GFS expenses in each state and territory by the number of children attending pre-school in that state or territory as measured by the 2002 **Child Care Survey** (cat. no. 4402.0). The 2002 figures were adjusted to represent the HES reference period using the change in the number of 3 to 5 year olds over this period according to **Population by Age and Sex, Australian States and Territories** (cat. no. 3201.0). The number of children attending pre-school in each household was imputed according to pre-school participation rates. Pre-school participation rates were separately derived for 3, 4 and 5 year olds by dividing the number of children attending pre-school (largely as measured by the **Child Care Survey**) by the estimated population of 3, 4 and 5 year olds in that state or territory. The benefit received by households was the (imputed) number of children attending pre-school multiplied by the average pre-school benefit for their state or territory of residence. Of $485 million available for allocation, $460 million was allocated for pre-school benefits. Underallocation occurred because the number of 3 to 5 year olds reported in the HES was less than the number reported in the **Child Care Survey**.

55 Government expenses relating to primary and secondary education and student transportation were allocated to households containing primary and secondary school students. An average benefit, for both education and transportation, was calculated for six student types: government primary, Catholic primary, other non-government primary, government secondary, Catholic secondary and other non-government secondary. Data on average expenditure for government school children was obtained from the **Ministerial Council on Education, Employment and Youth Affairs' (MCEETYA) National Schools Statistics Collection**, and average expenditure per student type for all non-government school students was obtained from the **Department of Education, Science and Training**.

56 Numbers of full-time equivalent students in August 2003 and August 2004 were obtained from **Schools, Australia** (cat. no. 4221.0). These were averaged to obtain 2003-04 estimates and aggregate expenditure was calculated. This was compared with GFS expenses on primary and secondary education and an adjustment factor was calculated and applied to average expenditure by student type. This ensured that average student benefits reflected GFS expenses. Households were allocated benefits according to the reported number of members who attended schools of each type. Of $23,999 million available, $24,652 million was allocated. Overallocation of benefits occurred because the number of school students reported in the 2003-04 HES exceeded the estimates of school students provided in **Schools, Australia**.

Tertiary education

57 Government expenses relating to university education were allocated to higher education students. Average benefits were derived by deducting government revenue from the sale of university education services (which includes payments under the Higher Education Contributions Scheme (HECS)) from GFS expenses and dividing net expenses by benchmark enrolment data from the 2003 and 2004 issues of **Education and Work, Australia** (cat. no. 6227.0). Part-time students were assumed to receive half the benefits of full-time students. Benefits were allocated to households according to the number of members who reported themselves as attending higher education. Of the $5,169 million available for allocation, $5,086 million was allocated. Underallocation of benefits occurred because HES numbers of higher education students, which exclude students living in student residences, were less than benchmark estimates of student numbers.

58 Government expenses relating to technical and further education were allocated to Technical and Further Education (TAFE) students. Average benefits were derived by dividing GFS expenses by the estimated number of TAFE students from the HES. Part-time students were assumed to receive half the benefits of full-time students. Benefits were allocated to households according to the number of members who reported themselves as attending TAFE. Of the $3,415 million available for allocation, the entire amount ($3,415 million) was allocated.

59 Government expenses relating to tertiary education n.e.c. were allocated to all persons who reported that they attended a tertiary institution either full or part-time. An average benefit was derived by dividing GFS expenses by benchmark enrolment data for higher education students and estimated number of TAFE students from the HES. The same benefit was allocated to all student types regardless of institution type and full-time or part-time status. Benefits were allocated to households according to the number of members who reported themselves as tertiary students. Of the $52 million available for allocation, the entire amount ($52 million) was allocated.

Other education benefits

60 Government expenses relating to special and other education were allocated to all pre-school, primary and secondary education students. An average benefit was derived for each state and territory by dividing GFS expenses in each state and territory by the reported number of pre-school students based on the 2002 **Child Care Survey** (cat. no. 4402.0) and the number of primary and secondary students from the 2003 and 2004 issues of **Schools, Australia** (cat. no. 4221.0). The 2002 **Child Care Survey** figures were adjusted to represent the HES reference period using the change in the number of 3 to 5 year olds over this period according to **Population by Age and Sex, Australian States and Territories** (cat. no. 3201.0). An equal average benefit was allocated to each student and household benefits were the sum of household members' benefits. Of $1,476 million available, $1,517 million was allocated. Overallocation of benefits occurred because the number of school students reported in the 2003-04 HES exceeded the estimates of school students provided in **Schools, Australia**.

Health

61 Health benefits were allocated for acute care institutions, community health services, pharmaceuticals and other health benefits. Other health benefits cover public health services, health research and health administration n.e.c.

62 These benefits were allocated to households according to an insurance premium approach. Instead of allocating benefits according to actual use of health services (which implies that benefits increase with ill health), members of the HES population were allocated benefits according to the average utilisation rates for their age, sex and state or territory of residence groups.

Acute care institutions

63 Government expenses relating to acute care institutions were allocated to all persons according to hospital bed utilisation rates (average number of days in hospital per person) for their age, sex and state or territory of residence group. Hospital utilisation was used as an indicator of the use of all institutional services and benefits. The utilisation rates were calculated using patient days obtained from **Australian Hospital Statistics, 2002-03** (cat. no. 8906.0) and 2003 and 2004 resident population estimates from **Population by Age and Sex, Australian States and Territories** (cat. no. 3201.0).

64 The benefit allocated to households was the sum of each member's utilisation rate multiplied by the average benefit per hospital bed day in their state or territory of residence. The average benefit per hospital bed day was derived by dividing GFS expenses per state or territory by the number of days spent in hospital by the state or territory population from **Australian Hospital Statistics, 2002-03** (cat. no. 8906.0). Of $19,813 million available for allocation, $18,352 million was allocated. Underallocation of benefits occurred because the HES excludes residents of special dwellings.

Community health services

65 Government expenses relating to community health services were allocated to all persons according to the doctor visit rate for their age, sex and state or territory of residence. Doctor visits were used as an indicator of utilisation for all non-institutional benefits and services such as dentists, specialists, maternal and infant centres, chiropractors, pathology services and domiciliary care. Utilisation rates for doctors were calculated using data on professional attendances obtained from the Medicare Australia website (www.medicareaustralia.gov.au) and resident population estimates from **Population by Age and Sex, Australian States and Territories** (cat. no 3201.0).

66 The benefit allocated to households was the sum of each member's utilisation rate multiplied by the average benefit per doctor visit in their state or territory of residence. An average benefit per doctors visit was derived by dividing GFS expenses per state or territory by the number of doctor visits made by the state or territory population (from Medicare Australia). Of $16,206 million available for allocation, $15,743 million was allocated. Underallocation of benefits occurred because the HES excludes residents of special dwellings.

67 In previous studies data on doctor visits were obtained from the National Health Survey. Use of Medicare data to allocate social transfers in kind relating to community health services may impact on the comparability of the distribution with previous studies.

Pharmaceuticals

68 Government expenses relating to pharmaceuticals, medical aids and appliances were allocated to all persons according to their eligibility for pharmaceutical concessions as well as usage of prescribed medicines for their age, sex and state or territory of residence group. In 2003-04, concessional benefits were available to holders of pensioner concession cards, health care cards, Commonwealth seniors health cards and **Department of Veterans' Affairs** Gold, Orange or White cards. Expenses relating to pharmaceuticals, medical aids and appliances were divided between those who were eligible for concessions and those who were not, in proportion to the cost to government of concessions provided by the **Department of Health and Ageing**. Utilisation rates were calculated using data on numbers of prescriptions obtained from the **Department of Health and Ageing** and resident population estimates from **Population by Age and Sex, Australian States and Territories** (cat. no 3201.0). Estimates of concession card holders were adjusted to account for persons holding more than one card.

69 Household benefits were the sum of each household member's utilisation rate multiplied by the average benefit per prescribed medicine according to their eligibility for concessions. Average benefits per prescribed medicine for those who were eligible for concessions and those who were not, were derived by dividing GFS expenses by total prescribed medicine utilisation for the two groups. For persons receiving concessions, total prescribed medicine utilisation was the product of benchmark numbers of holders of each type of concession card (obtained from annual reports of the **Department of Families, Community Services and Indigenous Affairs** and the **Department of Veterans' Affairs**) multiplied by the average utilisation rate for those eligible for concessions (derived by applying utilisation rates calculated using **Department of Health and Ageing** data and resident population estimates to persons who reported holding cards in the HES). For others, total prescribed medicine utilisation was the product of the estimated resident population (minus those who are holders of concession cards) multiplied by the average utilisation rates. Benefits were adjusted according to state and territory differences in expenses. Of the $6,397 million available for allocation, $5,880 million was allocated. Underallocation of benefits occurred because the HES excludes residents of special dwellings.

Other health benefits

70 Government expenses relating to public health, health research and health administration n.e.c. were allocated to all persons. An average benefit was derived by dividing GFS expenses per state and territory by the estimated resident population, from **Population by Age and Sex, Australian States and Territories** (cat. no. 3201.0). Benefits per household were equal to the number of members multiplied by the average benefit. Of the $5,532 million available for allocation, $5,405 million was allocated. Underallocation of benefits occurred because the HES excludes residents of special dwellings.

Housing

71 Government expenses relating to housing largely involves building new houses for rent or at a subsidised cost. These expenses were not allocated amongst HES households because it is difficult to identify likely future recipients of the benefits. Payments of the First Home Owners Grant were not allocated since they are regarded as a capital expense.

72 Instead, benefits were allocated to households in government rental accommodation according to the value of their rent subsidy. The value of their rent subsidy was taken to be the difference between the rent paid by the household and the estimated value of private market rent according to the state or territory, region, type of dwelling and number of bedrooms. Median market rents for private dwellings were obtained from the 2001 Census and the rents were adjusted to December 2003 prices according to the percentage change in the Consumer Price Index (CPI). In total, $1,406 million was allocated.

Social security and welfare

73 Government expenses relating to social security and welfare programs, other than direct cash payments (see Social assistance benefits in cash described previously) and payments for Child Care Benefit (CCB), were allocated to persons who received social security and welfare cash benefits. An adjustment was made to GFS expenses to exclude government expenditure on residential aged care amounting to $4,433 million. Average social transfers in kind for different types of benefit recipients were calculated by dividing indirect GFS expenses by the number of recipients. The number of recipients was based on data in **Yearbook, Australia, 2007** (cat. no. 1301.0), adjusted using HES data to avoid double counting of persons receiving multiple benefits within each benefit type. Household benefits were the sum of household members' benefits. Of $13,089 million available for allocation, $12,336 million was allocated. Underallocation of benefits occurred because of HES population exclusions and under-reporting of government cash benefits by HES respondents.

74 Government expenditure on CCB was allocated to households using a revised methodology. In previous studies,

government assistance for child care was allocated to households with children under 12, according to household income and the probability that the children were attending eligible child care. The probability of a child attending care was the sum of the ratios of the number of children attending long day care, family day care, occasional care and outside school hours care to total numbers of children in these categories according to age and whether the children attend school as reported in the 2002 **Child Care Survey** (cat. no. 4402.0). These probabilities were applied to the HES sample, summed for each household member and then multiplied by the probability of children attending child care according to household labour force status. This probability was then multiplied by the rate of assistance provided according to their income and number of children.

75 In the 2003-04 study a regression method was used in allocating CCB to households. It involved fitting a prediction model to the 2002 **Child Care Survey** (cat. no. 4402.0) dataset using items that are common to both the **Child Care Survey** and the HES as predictors. Two models were used - firstly a logistic model to determine whether or not formal child care would be used, and secondly a Poisson model to determine the count of hours of formal child care, if used. The models were developed at the child level, but family and household influences on the use of child care were accounted for by including family and household composition type variables in the models.

76 The variables included in the logistic model to estimate whether or not a child would attend formal child care were:

- age of child (under 5 years / 5 years and over)
- state or territory
- part of state or territory (capital city / balance of state)
- mean age of parents (5 year age groups from 25 to 55)
- labour force status of parents (at least one parent not employed / employed parent(s))
- principal source of income of parent(s) (at least one parent with own unincorporated business as principal source / other)
- income unit type (couple / lone parent)
- household type (standard one family / other)
- family type (according to whether or not there are children aged 15 and over or other relatives present)
- joint income of parents

77 The variables included in the Poisson model to estimate the number of hours of formal child care, if used, were:

- age of child (under 1 year / 1 to 5 years / 6 to 10 years / 11 years)
- state or territory
- part of state or territory (capital city / balance of state)
- number of children aged 0 to 11 in the household
- hours worked by the parent who works least (as a log term)

78 The model coefficients were then applied to the HES data producing, for each child under 12 in the HES, the probability of that child attending formal child care and a prediction of the number of hours of care he/she would use if he/she attended care. Each child was also allocated a '1' or a '0' based on their probability of attending care. For example, if a child had a probability of 40% of attending care it had a 40% chance of being allocated a '1' and a 60% chance of being allocated a '0'.

79 CCB was allocated to children who lived in households that had expenditure on formal child care (excluding preschool) or for whom the model predicted that they would attend child care (i.e. the '1/0' item referred to above was '1'). Other children received no allocation. If the allocation had been restricted to households that had expenditure on formal child care, households who pay nothing for child care because their child care costs are completely refunded would not have had a chance of receiving an allocation. The 2003-04 method of allocation produces a far lumpier allocation than the 1998-99 approach which allocates benefits from child care assistance to all households with children under 12.

80 The amount of CCB allocated to each child was based on the probability of the child attending child care, multiplied by the number of hours of care predicted by the model, multiplied by a factor to account for differential rates of CCB at various income ranges. For those children in households with expenditure on formal child care the probability of using child care was set to 1, regardless of the probability allocated by the model. For other households the probability output from the model was used.

81 The administrative component of CCB was allocated equally among all children who received a CCB allocation.

82 The allocations were summed to the household level. Of the $1,768 million spent on CCB ($1,388 million in

direct payments and $380 million in administrative costs), all was allocated.

TAXES ON INCOME

83 Taxes on income is the sum of personal income tax plus the Medicare levy for all members of the household.

84 Estimates of income tax were modelled, rather than collected from respondents, for a number of reasons. Firstly, changes in income, family or other circumstances of the respondent, which are not described in the survey, may affect full year income tax assessments. Secondly, income tax assessments are only made after the end of the financial year, and therefore are not yet available at the time that current income is collected from respondents. Thirdly, the income tax assessment of respondents may be affected by certain expenditures which they make, such as donations to charities, or other particular circumstances which are not captured in the survey. Finally, the HES provides sufficient relevant information to allow a relatively comprehensive model to be constructed.

85 Taxes on income were imputed according to the following steps:

- for each individual, non-taxable components were deducted from reported gross income to give taxable income
- an approximate adjustment was made for deductions such as union dues and other work-related expenses
- tax payable was imputed from taxable income using 2003-04 marginal tax rates
- tax offsets were calculated according to household characteristics and eligibility criteria for age pensioners, beneficiaries, low income earners, dependent spouses, sole parents, residential zones, and franked dividend imputation credits
- total tax offsets were subtracted from gross tax to give final tax
- the Medicare levy, calculated using 2003-04 tax rules, was added to final tax
- individual final tax plus Medicare levy was aggregated for households.

86 The imputation differed from that used to impute tax in the 1998-99 study in that only variables that were collected in the SIH were included in the model (since the model was used to impute income tax for both SIH and HES respondents. Some components (such as Medicare levy surcharge) that were imputed in the 1998-99 study were not imputed in 2003-04.

87 In total, the HES population was calculated to have paid $85,719 million in taxes on income. GFS figures for 2003-04, however, show revenue from income tax levied on individuals to be $102,622 million. The main reasons for the underestimation of taxes on income in this study are:

- the calculation of tax liability on regular cash income only. Taxes such as capital gains tax were not calculated because the HES did not collect the relevant information
- insufficient data to model some components
- scope exclusions in the HES
- understatement of income in the 2003-04 HES.

TAXES ON PRODUCTION

88 Taxes on production and imports consist of taxes payable on goods and services when they are produced, delivered, sold, transferred or otherwise disposed of by their producers, plus taxes and duties on imports that become payable when goods enter the economic territory by crossing the frontier or when services are delivered to resident units by non-resident units; they also include other taxes on production, which consist mainly of taxes on the ownership or use of land, buildings or other assets used in production or on the labour employed, or compensation of employees paid.

89 The methodology used to calculate taxes on production in 2003-04 differs substantially from the method used to calculate indirect taxes in the 1998-99 study. Further information on the differences between these methods is provided in Appendix 4.

90 In allocating the taxes on production, it was assumed that industries will pass the burden of the taxes on production they pay to the purchasing industries and/or final consumers through higher prices. Also, the burden of the tax will be passed from one industry to another until the total burden of the tax is passed on to a final demand sector, one of which is the household sector.

91 The amount of taxes on production paid by HES households was calculated as follows:

- the estimation of the incidence of taxes on production to households is based on the extensive use of Input-Output tables from within the ASNA. The Input-Output tables present a comprehensive picture of the supply and use of goods and services in the economy and the income generated from production. It records the flows of products from one industry to another and to final demand for consumption. The 2001-02 Input-Output tables compiled in terms of 109 commodity classifications (IOCC) were used to calculate a tax rate for each of these commodity classifications:
- household expenditure is classified in the HES according to the Household Expenditure Classification (HEC). Approximately 600 HEC codes were mapped to 109 IOCC codes
- the expenditure on each HEC code was multiplied by the relevant tax rates to estimate the total final incidence of taxes on production on household consumption expenditure for each household.

92 The above methodology could not be used to allocate taxes on ownership of dwellings, because of scope differences between the ASNA Input-Output tables and the HES. The ASNA Input-Output tables include imputed rent for owner occupiers in household expenditure on ownership of dwellings, whereas the HES does not. The alternate methodology adopted was:

- for owner occupiers, taxes on ownership of dwellings were taken to be equal to expenditure on local government rates and land tax
- for private renters, the proportion of rent constituting taxes on production was estimated, based on the amount of rates paid by owner occupiers.

93 National accounts figures for 2003-04 show revenue from taxes on production and imports to be $99,116 million. Taxes on production on Household Final Consumption Expenditure (a national accounts concept measuring net expenditure on goods and services by households and non-profit institutions serving households) account for approximately 81% of total taxes on production. Therefore, at best, 81% of this revenue would be allocated by the study. The study allocated $59,342 million or 60% of total taxes on production. Less than 81% of taxes on production were allocated because:

- HES excludes some of the population
- household expenditures were, to a degree, understated, particularly for highly taxed items such as tobacco and gambling
- the tax rates derived from the Input-Output information refer to the 2001-02 financial year. In some cases, the tax rates used in this study will be higher than those in existence in 2003-04 and in other cases, they will be lower.

ACKNOWLEDGMENT

94 ABS publications draw extensively on information provided freely by individuals, businesses, governments and other organisations. Their continued cooperation is very much appreciated: without it, the wide range of statistics published by the ABS would not be available. Information received by the ABS is treated in strict confidence as required by the **Census and Statistics Act 1905**.

PRODUCTS AND SERVICES

SPECIAL DATA SERVICES

95 This publication provides a summary of the results of the study of the effects of government benefits and taxes on household income. The ABS offers specialist consultancy services to assist clients with more complex statistical information needs. Subject to confidentiality and standard error constraints, values for the data items included in this publication can be provided for HES population subgroups as requested. HES population subgroups can be defined according to the HES data items listed in Appendix 4 of **Household Expenditure Survey and Survey of Income and Housing User Guide, Australia, 2003-04** (cat. no. 6503.0). All specialist consultancy services attract a service charge and clients will be provided with a quote before information is supplied. For further information, contact ABS information consultants on 1300 135 070.

UNIT RECORD FILE

96 For clients who wish to undertake more detailed analysis of the survey data, a confidentialised unit record file (CURF) will be made available in the near future. Both the basic and expanded versions of the 2003-04 HES CURF

have been revised by appending the study estimates to each household record. Clients who have already purchased the 2003-04 **Household Expenditure Survey and Survey of Income and Housing - Confidentialised Unit Record Files, 2003-04** (cat. no 6540.0) will receive the revised CURF free of charge. A full range of up-to-date information about the availability of ABS CURFs and about applying for access to CURFs is available via the ABS web site <https://www.abs.gov.au> (see Services We Provide, Confidentialised Unit Record Files (CURFs)). Inquiries to the ABS CURF Management Unit should email: curf.management@abs.gov.au, or telephone (02) 6252 5853.

RELATED PUBLICATIONS

97 Users may wish to refer to the following ABS products which relate to government benefits, taxes and household income:

- **Household Income and Income Distribution, Australia, 2003-04** (cat.no. 6523.0)
- **Household Income and Income Distribution, Australia, Detailed Tables, 2003-04** (cat. no. 6523.0.55.001)
- **Household Expenditure Survey, Australia: Summary of Results, 2003-04** (cat.no. 6530.0)
- **Household Expenditure Survey, Australia: Detailed Expenditure Items, 2003-04** (cat. no. 6535.0.55.001)
- **Household Expenditure Survey and Survey of Income and Housing User Guide, Australia, 2003-04** (cat. no. 6503.0)
- **Household Wealth and Wealth Distribution, Australia, 2003-04** (cat.no. 6554.0)
- **Information Paper: Experimental Estimates of Personal Income for Small Areas, Taxation and Income Support Data, 1995-96 to 2000-01** (cat. no. 6524.0)
- **Labour Force, Australia** (cat. no. 6202.0)

Glossary

GLOSSARY

Acute care institution benefits

Includes social transfers in kind derived from government expenses relating to all activities of acute care hospitals, free-standing hospices, alcohol and drug treatment centres, and same-day establishments except activities involving health research and formal health education. Acute care institution benefits are a component of health benefits.

Age

Person's age last birthday.

Age pension

Includes the age pension, as well as additional cash allowances such as rent assistance. Age pension is a component of social assistance benefits in cash.

Assets

An entity of a financial or non-financial nature, owned by the household or its members, and from which economic benefits may be derived by holding or use over a period of time.

Average weekly expenditure

Value obtained by dividing the estimated weekly expenditure of a group of households by the estimated number of households in the group.

Balance of state

That part of each Australian state or territory not defined as capital city. Balance of state estimates for Northern Territory are regarded as too unreliable to publish separately since they exclude collection districts defined as very remote or Indigenous Communities which account for a significant proportion of the population. All of the Australian Capital Territory is defined as capital city for this publication.

Capital cities

Australia's six state capital city statistical divisions and the Darwin statistical division. For the Australian Capital Territory the estimates relate predominantly to urban areas.

Collection district

The census Collection District (CD) is the smallest geographic area defined in the **Australian Standard Geographical Classification** (cat. no. 1216.0).

Consumer Price Index (CPI)

A general measure of price inflation for the household sector in Australia. Specifically, it provides a measure of changes, over time, in the cost of a constant basket of goods and services acquired by the capital city households in Australia.

Community health service benefits

Includes social transfers in kind derived from government expenses relating to community health services such as domiciliary nursing services, well baby clinics, dental health services, health services provided to particular community groups, family planning services, alcohol and drug rehabilitation programs not involving admission, and other health services provided in a community setting. Also includes expenditure on patient transport. Community health service benefits are a component of health benefits.

Couple

Two people in a registered or de facto marriage, who usually live in the same household.

Couple family households with dependent children

One family household consisting of a couple with at least one dependent child. The household may also include non-dependent children, other relatives and unrelated individuals.

Decile

Groupings that result from ranking all households or people in the population in ascending order according to some characteristic such as their household income and then dividing the population into 10 equal groups, each comprising 10% of the estimated population.

Dependent children

All persons aged under 15 years; and people aged 15-24 years who are full-time students, have a parent in the household and do not have a partner or child of their own in the household.

Disability support pension

Includes the disability support pension, as well as additional cash allowances such as rent assistance. Disability

support pension is a component of social assistance benefits in cash.

Disposable income

Gross income after income tax and the Medicare levy are deducted and family tax benefit paid through the tax system or as a lump sum by Centrelink is added. Income tax and the Medicare levy are imputed based on each person's income and other characteristics as reported in the survey. Family tax benefit is estimated on the basis of reductions in pay-as-you-go tax payments, as reported in the survey, or imputed on the basis of each family's income and composition.

Education benefits

Social transfers in kind derived from government expenses relating to the provision of school, tertiary and other education.

Employed persons

Persons aged 15 years and over who, during the week before the interview:

- worked one hour or more for pay, profit, commission or payment in kind in a job or business, or on a farm (includes employees, employers and own account workers)
- worked one hour or more, without pay, in a family business or on a family farm, or
- had a job, business or farm but was not at work because of holidays, sickness or other reason.

Employee

An employed person who, for most of his/her working hours:

- works for a public or private employer and receives remuneration in wages or salary, or is paid a retainer fee by his/her employer and works on a commission basis, or works for an employer for tips, piece-rates or payment in kind, or
- operates his or her own incorporated enterprise with or without hiring employees.

Employer

A person who operates his or her own unincorporated economic enterprise or engages independently in a profession or trade, and hires one or more employees.

Equivalised household income

Household income has been adjusted using an equivalence scale. For a lone person household it is equal to household income. For a household comprising more than one person, it is an indicator of the household income that would need to be received by a lone person household to enjoy the same level of economic wellbeing as the household in question. For further information see Appendix 2.

Expenditure

The cost of goods and services acquired during the reference period for private use, whether or not the goods were paid for or consumed. Expenditure is net of refunds. For example, payments for health services are net of any refunds received or expected to be received. Expenditure is classified according to the Household Expenditure Classification which contains over 600 detailed items.

Family

Two or more people, one of whom is at least 15 years of age, who are related by blood, marriage (registered or de

facto), adoption, step or fostering and who usually live in the same household. A separate family is formed for each married couple, or for each set of parent-child relationships where only one parent is present.

Family composition of household

Classifies households into three broad groupings based on the number of families present (one family, multiple family and non-family). One family households are further disaggregated according to the type of family (such as couple family or one parent family) and according to whether or not dependent children are present. Non-family households are disaggregated into lone person households and group households.

Family tax benefit

Includes family tax benefit (both part A and part B) payments received fortnightly, as well as additional cash allowances such as rent assistance. It also includes one-off payments to families paid in 2003-04. Family tax benefit is a component of social assistance benefits in cash although for practical reasons, family tax benefit paid through the tax system or as a lump sum is excluded. For further information see Social assistance benefits in cash.

Final income

Disposable income plus social transfers in kind minus taxes on production.

Full-time student

A person 15 years or over who is classified as a full-time student by the institution they attend, or considers himself/herself to be a full-time student. Full-time study does not preclude employment.

Goods and services tax (GST)

Goods and Services Tax (GST) is a broad-based tax of 10% on most goods, services and other items sold or consumed in Australia.

Government pensions and allowances

see Social assistance benefits in cash.

Gross income

Regular cash receipts before income tax or the Medicare levy are deducted. It consists of private income plus social assistance benefits in cash.

Group household

A household consisting of two or more unrelated people where all people are aged 15 years and over. There are no reported couple relationships, parent-child relationships or other blood relationships in these households.

Health benefits

Health benefits are social transfers in kind derived from government expenses relating to acute care institutions, community health services, pharmaceuticals and other health benefits.

Household

A lone person living alone or a group of related or unrelated people who usually live in the same dwelling.

Household Expenditure Classification (HEC)

The expenditure classification used in the Household Expenditure Survey. In the 2003-04 survey it consists of over 600 items at the most detailed level. At the broadest level it consists of 17 broad expenditure groups. A copy of the classification is included in **Household Expenditure Survey and Survey of Income and Housing, Australia: User Guide, 2003-04** (cat. no. 6503.0).

Housing benefits

Social transfers in kind from the provision of government housing at subsidised rental rates.

Income

Regular and recurring receipts. Excludes lump-sum receipts, windfall gains and withdrawals from savings. Own unincorporated business income and other private income can be negative. Income data used in this study is as collected in the 2003-04 Household Expenditure Survey. Most information about income is obtained on a current basis, though some relates to the previous financial year.

Incorporated business

An incorporated business is a company that has a registered business name with the **Australian Securities and Investment Commission** (ASIC) and a legal status which is separate to that of the individual owners of the business.

Landlord type

For renters, the type of entity to whom rent is paid or with whom the tenure contract or arrangement is made. Landlords belong to one of the following categories:

- state/territory housing authority - where the household pays rent to a state or territory housing authority or trust
- private landlord - where the household pays rent to a real estate agent or to another person not in the same household
- other - where the household pays rent to the owner/manager of caravan park, an employer (including a government authority), a housing cooperative, a community or church group, or any other body not included elsewhere.

Liability

A liability is an obligation which requires one unit (the debtor) to make a payment or a series of payments to the other unit (the creditor) in certain circumstances specified in a contract between them.

Lone person household

A household consisting of a person living alone.

Mean income

Mean (or average) income is the total income of a group of units divided by the number of units in the group. For more detail about household weighted and person weighted means, see Appendix 1.

Medicare levy

Medicare is Australia's universal health care system. The Medicare levy is a specific tax, based on individual income, intended to assist in the funding of this system. For more information refer to <http://www.medicareaustralia.gov.au>.

Multiple family household

A household containing two or more families. Unrelated individuals may also be present.

Negative income

Income may be negative when a loss accrues to a household. Losses can accrue to owners of unincorporated enterprises or rental properties. Losses occur when operating expenses and depreciation are greater than gross receipts.

Net benefits

Total benefits minus total taxes.

Net worth

Net worth represents the difference between the value of household assets (both financial and non-financial) and the value of household liabilities. Net worth is positive when the value of a household's assets exceeds the value of its liabilities. Net worth is negative when household liabilities exceed household assets.

Non-dependent children

All people aged 15 years and over who:

- do not have a spouse or offspring of their own in the household
- have a parent in the household, and
- are not full-time students aged 15-24 years.

Non-family household

Consists of unrelated people only. A non-family household can be either a person living alone or a group household.

One family household

A household containing only one family. Unrelated individuals may also be present.

One parent family households with dependent children

A one family household comprising a lone parent with at least one dependent child. The household may also include non-dependent children, other relatives and unrelated individuals.

Other education benefits

Social transfers in kind derived from government expenses relating to special education (e.g. education for children who have physical disabilities) and other education benefits which could not be assigned to school or tertiary education. Other education benefits is a component of education benefits.

Other government pensions and allowances

Includes all other income support payments from the Australian government that are not included under retirement pension, family support payments, and unemployment and student allowances. These are a component of social assistance benefits in cash.

Other health benefits

Includes social transfers in kind derived from government expenses relating to public health services such as health promotion campaigns, occupational health and safety programs, food standards regulation, immunisation programs, breast cancer screening and screening for childhood diseases, as well as expenditure on health research. Other health benefits is a component of health benefits.

Other landlord type

Where the household pays rent to the owner/manager of a caravan park, an employer (including a government authority), a housing cooperative, a community or church group, or any other body not included elsewhere.

Other one family household

A household comprising:

- one couple with their non-dependent children only
- one couple, with or without non-dependent children, plus other relatives
- one couple, with or without non-dependent children or other relatives, plus unrelated individuals
- a lone parent with his/her non-dependent children, with or without other relatives and unrelated individuals or
- two or more related individuals where the relationship is not a couple relationship or a parent-child relationship (e.g. two brothers).

Other private income

Private income other than employee income, government pensions and allowance and income from own business. It includes superannuation, workers' compensation, child support and any other allowances regularly received as well as interest and property rent.

Other tenure type

A household which is not an owner, with or without a mortgage, or a renter. Includes rent free.

Own account worker

A person who operates his or her own unincorporated economic enterprise or engages independently in a profession or trade and hires no employees.

Own unincorporated business income

The profit/loss that accrues to persons as owners of, or partners in, unincorporated enterprises. Profit/loss consists of the value of gross output of the enterprise after the deduction of operating expenses (including depreciation). Losses occur when operating expenses are greater than gross receipts and are treated as negative income.

Owner (of dwelling)

A household in which at least one member owns the dwelling in which it usually resides. Owners are divided into

two classifications - owners without a mortgage and owners with a mortgage. If there is any outstanding mortgage or loan secured against the dwelling the household is an owner with a mortgage. If there is no mortgage or loan secured against the dwelling the household is an owner without a mortgage.

Parenting payment

Includes parenting payment for both sole and partnered parents. Parenting payment is a component of social assistance benefits in cash.

Percentile

When all households or people in the population are ranked from the lowest to the highest on the basis of some characteristic such as their household income or net worth, they can then be divided into equal sized groups. Division into 100 groups gives percentiles. The highest value of the characteristic in the tenth percentile is denoted P10. The top of the 50th percentile is denoted P50. P20, P80 and P90 denote the highest values in the 20th, 80th and 90th percentiles. Ratios of values at the top of selected percentiles, such as P90/P10, are often called percentile ratios. See also Percentile ratios.

Percentile ratios

Percentile ratios summarise the relative distance between two points in a distribution. To illustrate the full spread of the net worth distribution, the percentile ratio needs to refer to points near the extremes of the distribution, for example, the P90/P10 ratio. The P80/P20 ratio better illustrates the magnitude of the range within which the net worth of the majority of households falls. The P80/P50 and P20/P50 ratios focus on comparing the ends of the income distribution with the midpoint.

Pharmaceutical benefits

Includes social transfers in kind derived from government expenses relating to pharmaceuticals provided outside of hospitals, aids and appliances used for health purposes and supplied in an ambulatory setting, glasses, hearing aids, wheel chairs, etc. Pharmaceuticals is a component of health benefits.

Principal source of income

That source from which the most positive income is received. If total income is nil or negative the principal source is undefined. As there are several possible sources, the principal source may account for less than 50% of total income.

Private income

All regular cash payments received excluding social assistance benefits in cash. The private income of a household represents the total private income of all members of the household. Private income may be in the form of employee income, income from own business, interest on financial institution accounts, investments and property rent; superannuation and annuities; child support; workers' compensation; accident compensation; private and government scholarships or any other regular income. The value of private income is obtained from responses to income questions of the 2003-04 Household Expenditure Survey. Some respondents recorded negative incomes from business and/or property rent; these components of private income were retained as recorded. Private income also includes pensions and allowances from overseas governments.

Private landlord

See Landlord type.

Private dwelling

Houses, flats, home units, caravans, garages, tents and other structures that are used as places of residence. These are distinct from special dwellings which include hotels, boarding houses and institutions.

Quintiles

Groupings that result from ranking all households or people in the population in ascending order according to some characteristic such as their household income and then dividing the population into five equal groups, each comprising 20% of the estimated population. For further information see Appendix 1.

Reference person

The reference person for each household is chosen by applying, to all household members aged 15 years and over, the selection criteria below, in the order listed, until a single appropriate reference person is identified:

- one of the partners in a registered or de facto marriage, with dependent children
- one of the partners in a registered or de facto marriage, without dependent children
- a lone parent with dependent children
- the person with the highest income
- the eldest person.

For example, in a household containing a lone parent with a non-dependent child, the one with the higher income will become the reference person. However, if both individuals have the same income, the elder will become the reference person.

Relative standard error (RSE)

The standard error expressed as a percentage of the estimate for which it was calculated. It is a measure which is independent of both the size of the sample, and the unit of measurement and as a result, can be used to compare the reliability of different estimates. The smaller an estimate's RSE, the more likely it is that the estimate is a good proxy for that which would have been obtained if the whole population had been surveyed. For further information see Appendix 3.

Renter

A householder which pays rent to reside in the dwelling. See further classification by Landlord type.

School education benefits

Social transfers in kind derived from government expenses relating to administration, inspection, support and operation of educational programs for preschool, primary and secondary school students. Government expenditure on the administration, inspection, support and operation of transportation services to students were included. Government expenditure on school medical and dental programs (which are included in other health benefits) and monetary transfers to households were excluded. School education is a component of education benefits.

Selected dwelling

The private dwelling selected in the sample for the survey.

Social assistance benefits in cash

Regular cash payments received directly from the Australian government without any requirement to provide goods and services in return. Household social assistance benefits in cash are the sum of all household members' cash payments. The components of social assistance benefits in cash to residents which are separately identified in the study are: age pension, disability support pension, Veterans' Affairs pensions, family tax benefit, parenting payment, unemployment and student allowances and other government pensions and allowances. The one-off payments to families and carers paid in 2003-04 are included. Family tax benefit is also regarded as income, although for

practical reasons family tax benefit paid through tax system or lump sum by Centrelink is only included under disposable income, and not gross income. The only difference between 'government pensions and allowances' and 'social assistance benefits in cash' is that overseas pensions are included in government pensions and allowances and private income and excluded from social assistance benefits in cash.

Social security and welfare benefits

Includes social transfers in kind derived from government expenses relating to the provision of goods and services to specific population groups with special needs. It includes expenditure on child care services (including child care benefit subsidies), services for the aged, services for people with a disability, etc. The category excludes expenditure on monetary transfers to Australian residents (see Social assistance benefits in cash).

Social transfers in kind

Non-cash benefits and services provided by the government to households for education, health, housing and social security and welfare. The cost of administering the provision of social assistance benefits in cash is included.

Standard error

A measure of the likely difference between estimates obtained in a sample survey and estimates which would have been obtained if the whole population had been surveyed. The magnitude of the standard error associated with any survey is a function of sample design, sample size and population variability. For further information see Appendix 3.

State/territory housing authority

See Landlord type.

Taxes on income

Taxes on income is the sum of personal income tax plus the Medicare levy and Medicare levy surcharge for all members of the household. In this study, taxes on income were imputed according to the 2003-04 tax rules which were applied to the gross income of family members according to their characteristics as reported in the 2003-04 Household Expenditure Survey.

Taxes on production

Taxes on production and imports consist of taxes payable on goods and services when they are produced, delivered, sold, transferred or otherwise disposed of by their producers plus taxes and duties on imports that become payable when goods enter the economic territory by crossing the frontier or when services are delivered to resident units by non-resident units; they also include other taxes on production, which consist mainly of taxes on the ownership or use of land, buildings or other assets used in production or on the labour employed, or compensation of employees paid.

Taxes on production on alcohol beverages

Taxes on production on alcohol are identified separately in some tables; these taxes cover excises on beer and drinkable spirits, GST, wine equivalisation tax and all other taxes that are passed on from the process of production, delivery, transfer or sale of the alcohol.

Taxes on production on clothing and footwear

Taxes on production on clothing and footwear are identified separately in some tables; these taxes cover GST and all other taxes that are passed on from the process of production, delivery, transfer or sale of the clothing and footwear products.

Taxes on production on food and non-alcoholic beverages

Taxes on production on food and non-alcoholic beverages are identified separately in some tables; these taxes cover GST and all other taxes that are passed on from the process of production, delivery, transfer or sale of these items. Food and non-alcoholic beverages exclude meals out and fast food items.

Taxes on production on meals out and fast food

Taxes on production on meals out and fast food are identified separately in some tables; these taxes cover GST and all other taxes that are passed on from the process of production, delivery, transfer or sale of the meals out and fast food products.

Taxes on production on motor vehicle fuels

Taxes on production on motor vehicle fuel are identified separately in some tables. These taxes cover excises on crude oil and petroleum products, petroleum product franchise taxes, excises on diesel fuel, LPG and other gas fuels, excises on petrol used during holidays in Australia, GST and all other taxes that are passed on from the process of production, delivery, transfer or sale of the product.

Taxes on production on motor vehicle purchase

Taxes on production on motor vehicle purchase are identified separately in some tables; these taxes cover GST and all other taxes that are passed on from the process of production, delivery, transfer or sale of motor vehicles.

Taxes on production on other goods and services

All taxes on production on goods and services allocated to households, other than those separately identified in respect of alcoholic beverages, clothing and footwear, food and non-alcoholic beverages, meals out and fast food, motor vehicle purchase, ownership of dwellings, motor vehicle fuels and tobacco products.

Taxes on production on ownership of dwellings

Taxes on production which can be attributed to the ownership of dwellings are identified separately in some tables. The amounts given represent tax paid in the form of rates.

Taxes on production on tobacco products

Taxes on production on tobacco are identified separately in some tables. These taxes cover excises on tobacco products, GST and all other taxes that are passed on from the process of production, delivery, transfer or sale of tobacco.

Tenure type

The nature of a household's legal right to occupy the dwelling in which the household members usually reside. Tenure is determined according to whether the household owns the dwelling outright, owns the dwelling but has a mortgage or loan secured against it, is paying rent to live in the dwelling or has some other arrangement to occupy the dwelling.

Tertiary education benefits

Social transfers in kind derived from government expenses relating to the administration, inspection, operation and support of education programs at higher education institutions and colleges of technical and further education. Tertiary education is a component of education benefits.

Total benefits

The total of social assistance benefits in cash and social transfers in kind allocated.

Total taxes

The total of taxes on income and taxes on production allocated.

Unemployed persons

Persons aged 15 years and over who were not employed during the week before the interview, had actively looked for full-time or part-time work at any time in the four weeks before the interview and

- were available for work in the week before the interview, or
- were waiting to start a new job within four weeks from the interview and would have started in the week before the interview if the job had been available then.

Unemployment and student allowances

Includes newstart allowance, youth allowance, sickness allowance, mature age allowance, Austudy/Abstudy and additional cash allowances such as rent assistance. Unemployment and student allowances are a component of social assistance benefits in cash.

Unincorporated business

A business in which the owner(s) and the business are the same legal entity, so that, for example, the owner(s) are personally liable for any business debts that are incurred.

Veterans' Affairs pensions

Pensions paid by the **Department of Veterans' Affairs**. Includes service, disability and war widow pension as well as additional allowances such as rent assistance. Veterans' Affairs pensions are a component of social assistance benefits in cash.

Wages and salaries

The gross cash income received as a return to labour from an employer or from a person's own incorporated business.

Abbreviations

ABBREVIATIONS

The following symbols and abbreviations are used in this publication:

ABS	Australian Bureau of Statistics
ACT	Australian Capital Territory
ASNA	Australian System of National Accounts
Aust.	Australia
GFS	Government Finance Statistics
GST	goods and services tax
HES	Household Expenditure Survey
IOCC	Input-Output Commodity Code

nec	not elsewhere classified
no.	number
NSW	New South Wales
NT	Northern Territory
Qld	Queensland
RSE	relative standard error
SA	South Australia
SE	standard error
SIH	Survey of Income and Housing
SNA93	System of National Accounts 1993
Tas.	Tasmania
Vic.	Victoria
WA	Western Australia

Analysing Income Distributions (Appendix 1)

APPENDIX 1 ANALYSING INCOME DISTRIBUTIONS

INTRODUCTION

There are several ways to illustrate aspects of the distribution of income and its variability across society. In this publication, three main types of indicators used are: means, quantile measures and income shares. This appendix describes how these indicators are derived.

MEANS

Mean household income (average household income) is a simple indicator that can be used to show income differences between subgroups of the population.

Different income measures have been used in the tables. For the equivalised income measures, mean income is calculated with respect to the number of persons, even when the table is describing households. This enables people in large households to have the same contribution to the mean as people living alone. For other income measures, the means are calculated with respect to the number of households. For more information on equivalised income see Appendix 2.

QUANTILE MEASURES

When households (or any other units) are ranked from the lowest to the highest on the basis of some characteristic such as their household income they can then be divided into equally sized groups. The generic term for such groups is quantiles.

Quintiles, deciles and percentiles

When the population is divided into five equally sized groups, the quantiles are called quintiles. If there are 10 groups, the quantiles are deciles and division into 100 groups gives percentiles. Thus the first quintile will comprise the first two deciles and the first 20 percentiles.

This publication presents data classified into income quintiles and net worth quintiles. These quintiles each comprise the same number of households. In some tables, data presented are classified into equivalised disposable income quintiles and equivalised final income quintiles. Because equivalised income can be viewed as an indicator of the economic resources available to individuals in a household, these quintiles each comprise the same number of persons. When data are presented by equivalised income they are supplemented by data relating to the 2nd and 3rd deciles. These deciles are included to enable quintile style analysis to be carried out without undue impact from very low incomes which may not accurately reflect levels of economic wellbeing (see paragraphs 19 to 24 of the Explanatory Notes).

Upper values

In some analyses, the statistic of interest is the boundary between quantiles. This is usually expressed in terms of the upper value of a particular percentile. For example, the upper value of the first quintile is also the upper value of the 20th percentile and is described as P20. The upper value of the ninth decile is P90.

Percentile ratios

Percentile ratios summarise the relative distance between two points on a distribution. To illustrate the full spread of a distribution, the percentile ratio needs to refer to points near the extremes of the distribution, for example, the P90/P10 ratio. The P80/P20 ratio better illustrates the magnitude of the range within which the incomes of the majority of the population fall. The P80/P50 and P20/P50 ratios focus on comparing the ends of the distribution with the midpoint.

INCOME SHARES

Income shares can be calculated and compared for each income quintile (or any other subgrouping) of a population. The aggregate income of the units in each quintile is divided by the overall aggregate income of the entire population to derive income shares.

Equivalised Income (Appendix 2)

APPENDIX 2 EQUIVALISED INCOME

EQUIVALENCE SCALES

Equivalence scales have been devised to make adjustments to the actual incomes of households in a way that enables analysis of the relative wellbeing of households of different size and composition. For example, it would be expected that a household comprising two people would normally need more income than a lone person household if the two households are to enjoy the same standard of living.

One way of adjusting for this difference in household size might be simply to divide the income of the household by the number of people within the household so that all income is presented on a per capita basis. However, such a simple adjustment assumes that all individuals have the same resource needs if they are to enjoy the same standard of living and that there are no economies derived from living together.

Various calibrations, or scales, have been devised to make adjustments to the actual incomes of households in a way that recognises differences in the needs of individuals within those households and the economies that flow from sharing resources. The scales differ in their detail and complexity but commonly recognise that the extra level of resources required by larger groups of people living together is not directly proportional to the number of people in the group. They also typically recognise that children have fewer needs than adults.

When household income is adjusted according to an equivalence scale, the equivalised income can be viewed as an indicator of the economic resources available to a standardised household. For a lone person household it is equal to household income. For a household comprising more than one person, it is an indicator of the household income that would need to be received by a lone person household to enjoy the same level of economic wellbeing as the household in question.

Alternatively, equivalised household income can be viewed as an indicator of the economic resources available to each individual in a household. The latter view underpins the calculation of income distribution measures based on numbers of people, rather than numbers of households.

CHOICE OF SCALE

While there has been considerable research by other statistical agencies trying to estimate appropriate values for equivalence scales, no single standard has emerged. In theory, there are many factors which might be taken into account when devising equivalence scales, such as recognising that people in the labour force are likely to face

transport and other costs that can affect their standard of living. It might also be desirable to reflect the different needs of children at different ages, and the different cost levels faced by people living in different geographic areas. On the other hand, the tastes and preferences of people vary widely, resulting in markedly different expenditure patterns between households with similar income levels and similar composition. Furthermore, it is likely that equivalence scales that appropriately adjust incomes of low income households are not as appropriate for higher income households, and vice versa. This is because the proportion of total income spent on housing tends to fall as incomes rise, and cheaper per capita housing is a major source of economies of scale that flow from people living together.

It is therefore difficult to define, estimate and use equivalence scales which take all relevant factors into account. As a result, analysts tend to use simple equivalence scales which are chosen subjectively but are nevertheless consistent with the quantitative research that has been undertaken. A major advantage of simpler scales is that they are more transparent to the user, that is, it is easier to evaluate the assumptions being made in the equivalising process.

In this publication, the 'modified OECD' equivalence scale is used. The 'modified OECD' equivalence scale has been used in more recent research work undertaken for the **Organisation for Economic Co-operation and Development** (OECD), and has wide acceptance among Australian analysts of income distribution, and is the stated preference of key users of the survey.

DERIVATION OF EQUIVALISED INCOME

Equivalised income is derived by calculating an equivalence factor according to the chosen equivalence scale, and then dividing income by the factor.

The equivalence factor derived using the 'modified OECD' equivalence scale is built up by allocating points to each person in a household. Taking the first adult in the household as having a weight of 1 point, each additional person who is 15 years or older is allocated 0.5 points, and each child under the age of 15 is allocated 0.3 points. Equivalised household income is derived by dividing total household income by a factor equal to the sum of the equivalence points allocated to the household members. The equivalised income of a lone person household is the same as its unequivalised income. The equivalised income of a household comprising more than one person lies between the total value and the per capita value of its unequivalised income.

Equivalised household income is an indicator of the economic resources available to each member of a household. It can therefore be used for comparing the situation of individuals as well as comparing the situation of households. When unequivalised income is negative, such as when losses incurred in a household's unincorporated business or other investments are greater than any positive income from any other sources, then equivalised income has been set to zero.

EFFECT OF EQUIVALISATION ON INCOME MEASURES

In this publication, various different income measures are shown. The progression from private income to final income is shown in the tables in the main part of the publication. Equivalised income estimates have also been provided for some income measures, in order to adjust for differences in household composition and better enable comparison of relative wellbeing. To assist in explaining the effect of equivalisation on income measures, the following table shows the differences in income measures when calculated using final income and equivalised final income.

A1 From final income to person weighted equivalised final income

| | | Final income | Equivalised final income | |
			Household weighted	Person weighted
Percentile boundaries and percentile ratios				
P10	$	371	327	354
P20	$	494	390	422
P50	$	881	542	575
P80	$	1 451	752	765
P90	$	1 777	895	896
P90/P10	ratio	9.86	2.74	2.53
P80/P20	ratio	4.79	1.93	1.81
Means				
All households	$	1 007	590	612

Family composition of household				
One family households				
Couple family with dependent children	$	1 442	637	636
One parent family with dependent children	$	959	567	571
Couple only	$	917	612	612
Other one family households	$	1 252	623	633
Multiple family households	$	1 898	655	656
Non-family households				
Lone person	$	498	501	501
Group households	$	1 078	625	630

Final income relates to the household as a whole and the percentiles and means are calculated with respect to the numbers of households concerned. These are referred to as household weighted estimates. Equivalised final income can also be household weighted, but since it can be viewed as the economic resources available to each individual in a household, income measures for equivalised estimates are generally based on numbers of people rather than numbers of households. This is referred to as person weighting and ensures that people in large households are given as much weight in the distribution as people in small households. While the ranking underlying the formation of percentiles is the same for the household and person weighted estimates, the boundaries between the percentiles differ because household weighted percentile boundaries create subgroups with equal numbers of households while person weighted percentile boundaries create subgroups with equal numbers of persons. The extent to which the boundaries differ reflects the extent to which the average household size differs between percentiles.

The person weighted estimate of P10 for equivalised final income ($354) is higher than the household weighted estimate ($327). This implies that the households with the lowest ranking of equivalised final income tend to comprise a lower than average number of persons. In other words, the 10% of people with the lowest income make up more than 10% of households with the lowest income.

For lone person households, the two measures of equivalised final income are the same as each other ($501) and just a little higher than final income ($498). Equivalised final income for lone person households is approximately the same as final income, because the equivalising factor for such households is 1.0. The reason for the slight difference between them is that some households have negative final income and their values are reset to zero before equivalising is carried out.

For all other types of households composition, equivalised final income is lower than final income, since income is adjusted to reflect household size and composition. Mean equivalised final income for couple only households is the same for both the household weighted and the person weighted measures since there are always two and only two persons in such households. For most other multi-person households, person weighted mean income is higher than the household weighted mean. This implies that, within each type, larger households tend to have higher equivalised final income.

Sampling variability (Appendix 3)

APPENDIX 3 SAMPLING VARIABILITY

INTRODUCTION

The estimates in this publication are based on information obtained from the occupants of a sample of dwellings. The accuracy of the estimates refers to how close the estimates are to the true population value. The discrepancy between the value of sample estimates and the population value results from two types of errors, sampling and non-sampling errors. Paragraph 35 of the Explanatory Notes discusses non-sampling errors in the estimates while this Appendix provides more information about sampling errors (or sampling variability).

One measure of the likely difference due to sampling variability is given by the standard error (SE), which indicates the extent to which an estimate might have varied because only a sample of dwellings was included. There are about two chances in three that the sample estimate will differ by less than one SE from the figure that would have been obtained if all dwellings had been included, and about 19 chances in 20 that the difference will be less than two SEs. Another measure of the likely difference is the relative standard error (RSE), which is obtained by expressing the SE as a percentage of the estimate.

For estimates of population sizes, the size of the SE generally increases with the level of the estimate, so that the

larger the estimate the larger the SE. However, the larger the sampling estimate the smaller the SE in percentage terms (RSE). Thus, larger sample estimates will be relatively more reliable than smaller estimates.

In the tables in this publication, estimates with RSEs of 25% or more are considered unreliable for most purposes. Estimates with RSEs greater than 25% but less than or equal to 50% are annotated by an asterisk to indicate they are subject to high SEs and should be used with caution. Estimates with RSEs of greater than 50%, annotated by a double asterisk, are considered too unreliable for general use and should only be used to aggregate with other estimates to provide derived estimates with RSEs of 25% or less.

Space does not allow for the separate indication of the SE of all the estimates in this publication. RSEs for all tables are provided on the ABS web site in an excel spreadsheet <https://www.abs.gov.au> (see Statistics: Access to all ABS products and statistics, by Catalogue Number 65. Consumer income and expenditure, **Government Benefits, Taxes and Household Income, Australia,** cat.no. 6537.0). The RSEs have been derived using the group jackknife method.

RSES OF COMPARATIVE ESTIMATES

Proportions and percentages

Proportions and percentages, which are formed from the ratio of two estimates, are also subject to sampling errors. The size of the error depends on the accuracy of both the numerator and the denominator. For proportions where the denominator is an estimate of the number of households in a grouping and the numerator is the number of households in a sub-group of the denominator group, the formula for the RSE is given by

$$RSE\%\left(\frac{x}{y}\right) = \sqrt{[RSE\%(x)]^2 - [RSE\%(y)]^2}$$

Differences between estimates

The difference between survey estimates is also subject to sampling variability. An approximate SE of the difference between two estimates (x-y) may be calculated by the formula:

$$SE(x-y) = \sqrt{[SE(x)]^2 + [SE(y)]^2}$$

This approximation can generally be used whenever the estimates come from different samples, such as two estimates from different years or two estimates for two non-intersecting subpopulations in the one year. If the estimates come from two populations, one of which is a subpopulation of the other, the SE is likely to be lower than that derived from this approximation, but there is no straightforward way of estimating how much lower.

Methodology for allocating taxes on production (Appendix 4)

APPENDIX 4 METHODOLOGY FOR ALLOCATING TAXES ON PRODUCTION

INTRODUCTION

This publication summarises the results of a study of the effects of government benefits and taxes on the distribution of income among private households in Australia. The allocation of benefits and taxes to households included in the study is restricted to those benefits and taxes that are relatable to particular types of households and household expenditures.

The study produces estimates of final household income by extending the estimates of household disposable income. For this, estimates of the value of indirect benefits household receive from free or subsidised government services, known as social transfers in kind, are added to household disposable income and estimates of the value of taxes on production assumed to be ultimately paid by the households are deducted. The two components are modelled using aggregate government finance statistics and Input-Output tables.

With the aim of improving the coverage of taxes on production allocated in the study, the ABS has developed a new

methodology for the estimation of the incidence of taxes on production to households.

TAXES ON PRODUCTION

The incidence of taxes on production to households is the amount of taxes on production a household pays, expressed as a percentage of the household's income.

The underlying assumption is that industries will pass on the taxes on production they pay to the purchasing industries and/or final consumers through higher prices. The tax will be passed from one industry to another until it is fully passed on to a final demand sector, one of which is the household sector. For example, suppose the textile industry pays a total of $200 in payroll tax. If half of the textile products are purchased by the clothing industry, and the other half by the footwear industry, the $200 payroll tax is assumed to cause an increased cost of $100 to each industry. These $100 amounts will be either passed on again to other purchasing industries, or added to the cost of clothes and shoes purchased by households.

The 1998-99 publication of **Government Benefits, Taxes and Household Income, Australia** (cat. no. 6537.0) refers to taxes on production as indirect taxes.

Following the implementation of the 1993 **System of National Accounts** (SNA93), the term indirect taxes is no longer used and has been replaced by the term taxes on production and imports (for the purposes of this publication we are using the term **taxes on production**). Taxes on production consist of taxes on products and other taxes on production.

TAXES ON PRODUCTS

Taxes on products are taxes payable on goods and services when they are produced, delivered, sold, transferred or otherwise disposed of by their producers. They include:

- goods and services tax (GST)
- taxes and duties on imports (excluding GST)
- export taxes (excluding GST)
- other taxes on products (excluding GST).

OTHER TAXES ON PRODUCTION

Other taxes on production consist of all taxes except taxes on products that enterprises incur as a result of engaging in production. These taxes do not include any taxes on profits or other income received by the enterprise. They are taxes payable on the land, fixed assets or labour employed in the production process or on certain activities or transactions. Other taxes on production include:

- taxes on payroll or workforce
- recurrent taxes on land, buildings or other structures
- business and professional licences
- taxes on the use of fixed assets or other activities
- stamp taxes
- taxes on pollution
- taxes on international transactions.

GOVERNMENT SUBSIDIES

Government subsidies are netted out from taxes on production. Subsidies are defined in the SNA93 as unrequited payments that government units, including non-resident government units, make to resident producers or importers on the basis of the levels of their production activities or the quantities or values of goods or services that they produce, sell or import. Subsidies are equivalent to negative taxes on production in so far as their impact on the operating surplus of producers is in the opposite direction to that of taxes on production. Subsidies consist of subsidies on products and other subsidies on production.

PREVIOUS APPROACHES TO CALCULATING TAXES ON PRODUCTION

The methodology used up until 1998-99 for estimating the incidence of taxes on production to households can be regarded as being a relatively limited method. It captured taxes on production levied directly on final goods and services purchased by household and the taxes on production levied on industries carrying out the final stage of production before the goods and services are supplied to households. However, it did not capture taxes on production levied:

- on industries producing the goods and services that are used as inputs to the production of commodities supplied to households
- during the creation of fixed capital utilised in the production of goods and services purchased by households
- on margin industries that are engaged in the transport and distribution of goods that are purchased by households.

The introduction of the GST and other elements of the new tax system from 1 July 2000 substantially altered the structure of the system of taxes on production in Australia. For instance, sales tax and some other taxes are no longer levied on early stages of production and the GST is effectively only applied to Household Final Consumption Expenditure (HFCE), since GST paid on industry inputs, Gross Fixed Capital Formation (GFCF) and exports is normally refunded.

NEW METHODOLOGY FOR CALCULATING THE INCIDENCE OF TAXES ON PRODUCTION

A detailed review of the steps undertaken to calculate the final incidence of taxes on production is available in **Review of Methodology for Estimating Taxes on Production in the Calculation of Household Final Income** (cat. no. 1351.0.55.012).

Focusing on HFCE, the methodology calculates tax incidences for taxes on products and other taxes on production. There are three new elements to the methodology for calculating the incidence of taxes on production, namely the:

- re-allocation of taxes on production incurred at any stage of the production process, rather than only allocating those incurred in the last stage of production or as the product is purchased by the household
- re-allocation of taxes on production initially allocated to goods constituting GFCF
- re-allocation of taxes on production levied on the margin industries.

As with the previous methodology, it is assumed that taxes on production are fully passed on to consumers. It is also assumed that the tax rates current during the reference period of the Input-Output tables are applicable at the time of production of the commodities reported in the Household Expenditure Survey (HES). This study uses 2001-02 Input-Output tables to estimate tax rates for goods purchased in 2003-04.

INPUT-OUTPUT TABLES

The estimation of the incidence of taxes on production to households is based on the extensive use of Input-Output tables from the **Australian System of National Accounts** (ASNA). The Input-Output tables present a comprehensive picture of the supply and use of goods and services in the economy and the income generated from production. It records the flows of products from one industry to another and to final demand for consumption.

The ABS published the Input-Output tables in **Australian National Accounts, Input-Output Tables, 2001-02** (cat. no. 5209.0.55.001). This publication includes the supply-use tables with detailed explanatory notes on the data sources, content and construction of the tables. The 2001-02 Input-Output tables were compiled in terms of 109 product groups.

DERIVATION OF TAX RATES

A tax rate is allocated to each of the 109 Input-Output product groups. These tax rates are used to estimate the total final incidence of taxes on production on household consumption expenditure for each household. A detailed explanation of the methodology used to calculate the tax rates from the Input-Ouput tables is available in **Review of Methodology for Estimating Taxes on Production in the Calculation of Household Final Income** (cat. no. 1351.0.55.012). A general outline of the three new elements involved in the revised methodology, as well the

assumptions employed, is provided below.

INCORPORATION OF TAXES ON EARLY STAGES OF PRODUCTION:

Taxes on production can be:

- levied on commodities as they are supplied for final use (i.e. for HFCE, government final consumption expenditure, GFCF, change in inventories, or exports)
- levied on industries that supply commodities for final use
- levied on industries that supply commodities as inputs to other industries.

The incidence of taxation for each commodity group derived with the previous methodology only reflected the first two of these categories of taxes on production. The new methodology also incorporates the third category. Using matrix manipulation techniques utilised in standard Input-Output table analysis, it is possible to track the ultimate final use of all inputs to the production process. It is therefore possible to allocate all taxes that are levied in the early stages of the production process to appropriate final use categories.

INCORPORATION OF GROSS FIXED CAPITAL FORMATION (GFCF)

In the same way that it is assumed that taxes on production increase the prices paid for commodities purchased as HFCE, it can also be assumed that taxes on production increase the prices of commodities comprising GFCF. The capital costs of producers are therefore higher than they would otherwise be, and it can be assumed that producers charge correspondingly higher prices for their output.

The second new element of the methodology estimates the proportion of HFCE that can be attributed to the taxes on production embodied in the capital costs of producers. To achieve this, "capital stock" is treated as a dummy industry in the Input-Output tables, and the estimation is done in an analogous way to the estimation of the impact of taxes on production on the supply of intermediate inputs to the producing industries.

There are a number of assumptions underlying this approach:

- that the production taxes allocated to GFCF in the current period also applied for all the periods over which the current capital stock was built up, or that producers make their current output pricing decisions as though this were the case
- that the level of GFCF in the current period is typical of all periods over which the capital stock has been built up
- that the incidence of production taxes on GFCF is the same for all industries
- in the absence of industry specific depreciation data, that the usage of capital across industries is proportionate to gross operating surplus across industries.

ALLOCATION OF TAXES ATTRIBUTED TO THE MARGIN INDUSTRIES

For most analysis using Input-Output tables, it is necessary to value commodities at "basic values". With this approach, industries that distribute goods without transforming them are treated as margin industries. The principal industries concerned are transport of goods, wholesaling and retailing. The commodities that these industries distribute are not shown as the inputs and outputs of the margin industries. Instead, the commodities are shown as flowing directly from the producing industry to the user, and the margin industries are shown as providing separate services to the purchasers of the commodities. For example, the goods that households purchase from retailers are shown as flowing from the food processing industry, the oil refining industry, etc., but with a valuation that excludes the margins incurred in the transporting, wholesaling and retailing of the goods. The margins are shown as separate expenditures by households or other users along the supply chain.

The methodology used in this study involves calculating the incidence of taxes on production for each Input-Output commodity group/industry and then applying those rates to the appropriate HES commodities. However, HES respondents report the values that they paid for goods and services, that is, the HES data are valued at "purchasers' prices", not "basic values". Therefore, the distribution margins separately identified within the Input-Output tables are an integral part of the values of goods and services purchased as reported in the HES, and there are no separate HES commodities that match to the Input-Output margin industries.

In contrast to the previous methodology, the new methodology uses detailed Input-Output table information to reallocate the taxes on production initially allocated to the margin industries to the industries whose goods are being distributed. In this way they too can be matched to HES commodity expenditures.

APPLYING TAX RATES TO HOUSEHOLD EXPENDITURES

With the exception of the ownership of dwellings commodity, the obtained tax rate for each of the 109 commodities using the Input-Output approach are applied to their corresponding average weekly household expenditures reported in HES to come up with the value of taxes on production paid by individual households. To do this, a mapping between the Input-Output commodities and the HES expenditures is needed.

MAPPING HEC TO IOCC

Household expenditure is classified in the HES according to the **Household Expenditure Classification** (HEC). This was translated into expenditure classified by the **Input-Output Classification of Commodities** (IOCC). The concordance between the HEC and the IOCC used in this study mapped each HEC code to an IOCC code as follows:

- a HEC code is mapped to one of the 109 IOCC codes
- in some cases, a HEC code is mapped to more than one IOCC code.

In the latter cases, the concordance acknowledged the fact that expenditure classified to one HEC code can be represented by more than one IOCC code.

OWNERSHIP OF DWELLINGS

The above methodology could not be used to allocate taxes on ownership of dwellings, because of scope differences between the Input-Output tables and the HES. The Input-Output tables include imputed rent for owner occupiers in household expenditure on ownership of dwellings, whereas HES does not. The alternate methodology adopted was as follows:

- for owner occupiers, taxes on ownership of dwellings were taken to be equal to expenditure on local government rates and land tax
- for private renters, the proportion of rent constituting taxes on production was estimated, based on the amount of rates paid by owner occupiers.

IMPACT OF NEW METHODOLOGY ON THE ALLOCATION OF TAXES ON PRODUCTION

The new methodology has improved the coverage of the total taxes on production allocated to households. The table below shows the National Accounts figures for 1998-99 and 2003-04 taxes on production and what was allocated by this study using both the previous and new methodologies.

A4.1 Taxes on production allocated using 1998-99 and 2003-04 methodologies

	Net total taxes on production (published)(a) $m	Taxes on production allocated by the study $m	Percent %
1998-99 (previous methodology)	69 842	29 411	42
1998-99 (new methodology)	69 842	45 212	65
2003-04 (new methodology)	99 116	59 342	60

(a) Subsidies not included.

For 1998-99, the previous methodology used to allocate taxes on production to households resulted in allocation of 42% of all taxes on production, whereas the new methodology significantly increased this allocation to 65%. As the scope of this study is limited to the household sector, it does not attempt to fully allocate the National Accounts total, which also includes tax of non-household final demand sectors e.g. government final consumption, exports.

The proportion of taxes on production allocated in 2003-04 is 5% lower than the 1998-99 allocation using the new methodology.

The main reason for the decrease in allocation in 2003-04 is that there is a greater degree of difference between expenditures reported in the HES and the estimated level of HFCE in the Input-Output tables. Highly taxed commodities such as tobacco and gambling services are known to be underreported by respondents. In 1998-99 the estimated unallocated amount of tax due to underestimation of expenditure in the HES as compared to ASNA was about $5 billion, whereas it was about $15 billion in 2003-04.

The effect was partially offset by an increase in taxes on production included in HFCE due to the introduction of The New Tax System (TNTS) in 2000 which both widened the base for taxes on production and, through the GST, resulted in taxes on production being more directly attributable to individual household expenditures than was possible with the previous taxation arrangements. In 1998-99 taxes on production on HFCE accounted for 77% of total taxes on production, whereas in 2003-04 this increased to 81%.

The new methodology had relatively little impact on the distribution of the incidence of taxes on production by equivalised private income quintiles for 1998-99.

A4.2 Distribution of total taxes on production, by Equivalised private income quintile
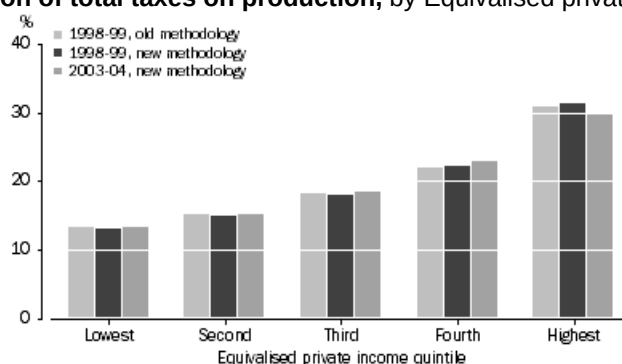
There are only minor changes in the distribution of taxes on production in 2003-04 as compared to 1998-99 using the new methodology. Tax for the highest quintile has decreased, whereas tax for lower four quintiles has slightly increased. The reasons for these minor changes are believed to be:

- the redistribution impact of the GST
- changes in expenditure patterns between 1998-99 and 2003-04
- demographic changes between 1998-99 and 2003-04
- the increased underreporting of taxed expenditure in 2003-04.

In summary, a significant amount of the taxes on production that were not captured in the previous methodology are accounted for in the new approach resulting in an additional $1.6 billion in taxes being allocated in 1998-99. The introduction of the GST resulted in a much larger proportion of taxes on production being levied at the point at which goods and services are provided to final consumers.

The new methodology increases the estimated average amount of taxes on production paid by households. However, increased underreporting of taxed expenditure in 2003-04 significantly offset the benefits derived from using the new methodology. The increased underreporting of taxed expenditure in 2003-04 compared to 1998-99 is estimated to have understated taxes on production by $22 per week per household. Had these expenditures been reported in 2003-04 at the level reported in 1998-99, it would have resulted in the extra taxes on production being allocated to the spending households. It is likely that the allocation would have increased the share of taxation paid in the higher income quintiles.

Comparison of income, benefits and taxes for 1998-99 and 2003-04 studies (Appendix 5)

APPENDIX 5 COMPARISON OF INCOME, BENEFITS AND TAXES FOR 1998-99 AND 2003-04

INTRODUCTION

This appendix compares the results of the 2003-04 study of the distributional impact of government taxation and expenditure on the income of private households, with those of the previous study which was conducted in respect of 1998-99. Differences between the two studies that may impact on the comparison are also outlined.

In previous issues of this publication, data from the latest study were compared with data from each of the previous studies (conducted in respect of 1984, 1988-89 and 1993-94). This was done by conducting a separate comparative study utilising similar methodology to that used in the 1984 study. However this became increasingly difficult with each study because of the changes that had occurred in both the methodology and data sources. In particular, the implementation of accrual accounting in government finance statistics in 1998-99 meant that it was not possible to compile comparable estimates of social transfers in kind. Further changes have been made in both methodology and data sources in the 2003-04 study and it is no longer possible to compile data for the comparative study.

COMPARABILITY OF 1998-99 AND 2003-04 DATA

The 1998-99 data presented in this appendix differ from those originally published in the 1998-99 issue of this publication. Some revisions were made to the data to correct errors detected after the original release. These revisions were incorporated in the 1998-99 confidentialised unit record file that was re-released in 2002. Changes have also been made to the methodology to make the 1998-99 study results more comparable with the 2003-04 study. The main changes are:

- estimates of average weekly household income in 1998-99 were revised upwards for private income, income from Veterans' Affairs pensions and income from other government pensions and allowances, totalling $10
- estimates of social assistance benefits in cash for 1998-99 have been recompiled using the 2003-04 classification
- estimates of taxes on production for 1998-99 have been recompiled using the revised methodology outlined in Appendix 4, resulting in the total 1998-99 estimate for the selected taxes on production increasing by $43 per week per household.

For comparison purposes, the results for 1998-99 included in this appendix have been presented with:

- the revised terminology used in the 2003-04 study applied (for more information see paragraph 7 of the Explanatory Notes)
- the application of equivalence scales to produce estimates of equivalised private income and equivalised final income for comparison with 2003-04 data
- the figures adjusted to 2003-04 dollars using changes in the Consumer Price Index.

However, significant differences remain between the two studies and they should be compared with caution. For more information see paragraphs 3 to 6 of the Explanatory Notes.

COMPARISON OF INCOME ESTIMATES

Private income

Table A5.1 shows that average weekly private household income has increased by 9% in real terms between 1998-99 and 2003-04. However, the items are not directly comparable because of improvements in the estimation of business and investment income in 2003-04, and the redefinition of a number of income items as a result of the integration of the Household Expenditure Survey and the Survey of Income and Housing in 2003-04.

A5.1 Income, benefits and taxes, Comparison between 1998-99 and 2003-04 studies, All households

	1998-99(a)	2003-04
Income, benefits and taxes - Average weekly value ($)		
Private income	912	992
Social assistance benefits in cash(b)		
Age pension	41	44

Disability support pension	15	17
Veterans' Affairs pension	12	12
Family tax benefit(c)	20	28
Parenting payment	14	13
Unemployment and student allowances	21	15
Other government pensions and allowances	8	8
Total social assistance benefits in cash	131	136
Gross income	**1 042**	**1 128**
Taxes on income	210	213
Disposable income	**832**	**916**
Selected social transfers in kind		
Education benefits		
School education	58	62
Tertiary education	26	21
Other education benefits	2	4
Total education benefits	86	87
Health benefits		
Acute care institutions	47	46
Community health services	33	39
Pharmaceuticals	10	15
Other health benefits	10	13
Total health benefits	100	113
Housing benefits	4	3
Social security and welfare benefits	32	35
Total selected social transfers in kind	222	238
Disposable income plus social transfers in kind	**1 054**	**1 154**
Selected taxes on production(d)		
Alcoholic beverages	11	11
Tobacco products	9	8
Motor vehicle fuel	21	19
Ownership of dwellings	12	14
Food and non-alcoholic beverages	11	9
Meals out and fast food	6	7
Motor vehicle purchases	15	8
Clothing and footwear	4	6
Other taxes on production	55	66
Total selected taxes on production	143	147
GST component in total selected taxes on production	. .	54
Final income	**961**	**1 007**
Total benefits allocated	353	375
Total taxes allocated	354	360
Net benefits allocated	**-1	*15
Equivalised private income	531	597
Equivalised disposable income	491	549
Equivalised final income	545	612

* estimate has a relative standard error of 25% to 50% and should be used with caution
** estimate has a relative standard error greater than 50% and is considered too unreliable for general use
. . not applicable
(a) In 2003-04 dollars, adjusted using changes in the Consumer Price Index (multiplied by 1.17816).
(b) Excludes overseas pensions.
(c) Income for 1998-99 refers to Family Allowance payments.
(d) Includes GST component.

Social assistance benefits in cash

Social assistance benefits in cash are comparable between the two studies. Average social assistance benefits in cash paid to households increased 4% in real terms from 1998-99 to 2003-04. Unemployment and student allowances decreased by 29% whereas disability support pensions increased by 13%. The average amount of family tax benefit received by households in 2003-04 was up 40% on the amount of family allowance received in 1998-99.

Social transfers in kind

There was a 7% increase in social transfers in kind across all households between 1998-99 and 2003-04. However, there were a number of changes in the methodology and data sources used in the estimation of social transfers in kind in 2003-04 which impact on comparability. Some government expenditure transaction types that were allocated in the 1998-99 study have not been included in social transfers in kind in 2003-04. These relate to:

- subsidy expenses (since they are allocated as part of taxes on production)
- capital transfer expenses (since there is no obvious way to measure how the resulting benefits accrue to households and since they do not necessarily accrue within the same period)

In addition, in the 2003-04 study government revenue from sales of goods and services has been offset against expenses before allocation. In the 1998-99 study only the estimated revenue under the higher education

contribution scheme (HECS) was offset against expenses, and the estimated revenue from HECS payments understated the actual revenue. If there had been no change in the expenditure transaction types included, or in the treatment of government revenue from sales of goods and services, the 2003-04 estimates for average weekly household social transfers in kind relating to education would have been $10 higher ($97), those relating to health would have been $8 higher ($121) and those relating to social security and welfare would have been $2 higher ($37).

There were some other changes (outlined in paragraph 6 of the Explanatory Notes) that cannot be quantified.

Taxes on income

There was a 1% real increase in taxes on income between 1998-99 and 2003-04. Estimates of income tax were modelled in both the studies based on income data collected in the Household Expenditure Survey and the relevant taxation legislation. The Medicare levy surcharge, telephone allowance and the medical expenses rebate components of the tax model were imputed in the 1998-99 study, but there was insufficient information available in 2003-04 to impute them.

Taxes on production

Appendix 4 outlines the new methodology introduced in 2003-04 to calculate taxes on production. This methodology has also been applied to 1998-99 to produce the estimates of taxes on production shown in table A5.1. While the data shown in table A5.1 show similar amounts estimated for taxes on production, it is estimated that the unallocated amount of taxes due to underestimation of expenditure in the HES increased from about $6 billion (in 2003-04 dollars) in 1998-99 to about $15 billion in 2003-04, or about $22 per week per household. The effect was partially offset by an increase in taxes on production included in Household Final Consumption Expenditure (HFCE) due to the introduction of The New Tax System (TNTS) in 2000.

Final income

Final income in 2003-04 cannot be directly compared with the 1998-99 figure since all the comparability issues outlined previously impact on this aggregate.

COMPARISON OF INCOME DISTRIBUTION

A5.2 Distribution of household income, benefits and taxes, by Equivalised private income quintile

| | Equivalised private income quintile | | | | | | |
	Lowest quintile %	Second quintile %	Third quintile %	Fourth quintile %	Highest quintile %	All households %	Second and third deciles %
Income share							
Private income							
1998-99	-	8.0	16.3	26.1	49.6	100.0	3.5
2003-04	0.8	8.9	17.0	25.7	47.6	100.0	4.3
Social assistance benefits in cash or kind							
1998-99	39.3	24.2	15.5	12.2	8.8	100.0	33.4
2003-04	41.1	23.0	15.5	11.5	9.0	100.0	33.1
Total taxes							
1998-99	5.4	8.4	14.6	23.1	48.5	100.0	6.5
2003-04	5.6	9.0	15.4	23.3	46.7	100.0	6.8
Final income							
1998-99	13.1	14.1	16.7	21.8	34.3	100.0	13.9
2003-04	14.0	14.2	17.0	21.2	33.5	100.0	14.1
Equivalised private income							
1998-99	0.6	8.6	17.3	26.6	46.9	100.0	3.6
2003-04	0.9	9.6	17.9	25.9	45.7	100.0	4.4
Equivalised final income							
1998-99	12.7	15.0	17.8	22.3	32.3	100.0	13.6
2003-04	13.2	15.1	18.1	21.6	32.1	100.0	13.9

- nil or rounded to zero (including null cells)

Table A5.2 compares households income shares for quintile groups between 1998-99 and 2003-04. The quintile groups are formed by ranking households according to their equivalised private income and dividing them into five equal groups.

Private income was more equally spread across the equivalised private income quintiles in 2003-04 than in 1998-99. The lowest three quintiles received greater shares of private income in 2003-04 and the highest two quintiles received lesser shares. The difference in quintile shares shown in private income were reduced by government benefits and taxes so that final income is more evenly distributed than private income in both years.

Final income follows a similar pattern to private income, with final income in 2003-04 being slightly more evenly distributed across the quintiles than in 1998-99. If the level of unallocated taxes on production in 2003-04 had been similar to that estimated for 1998-99, it is likely that final income estimates would have been more evenly distributed.

The share of government benefits going to the lowest and highest quintiles has increased since 1998-99 while the shares going to the remaining quintiles has fallen. Taxes are more equally distributed in 2003-04, with the share of taxes paid by the lower four quintiles increasing and the share paid by the highest quintile decreasing.

Part of the change in the distribution of income is due to the effects of changes over time in household size and composition. When adjustments are made for household size and composition, the change in the spread of both private and final income is reduced. The share of equivalised final income going to the lowest quintile is 4% higher than in 1998-99 (compared with 7% for final income) and the share of equivalised final income going to the highest quintile is similar to 1998-99 (compared with a 2% fall for final income).